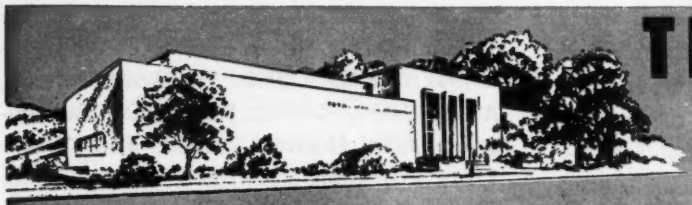

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State Journal of Medicine

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Cancer Survey

Because of the far-reaching medical conclusions that potentially will result from the cancer prevention study now being sponsored by the American Cancer Society, I was pleased to hear that the Committee on Cancer and the Executive Board of our Texas Medical Association extended it their wholehearted approval. This study was first announced to the medical profession in the July 11, 1959, issue of the *Journal of the American Medical Association* and is under the direction of Dr. E. Cuyler Hammond, statistical research director for the national society.

As it promises to be of significance in their practice, I believe it is important that every physician in Texas should be given the facts concerning the cancer prevention study and what it hopes to accomplish. At the same time, I would like to urge them to cooperate fully in the development of the survey so that its full impact may be felt.

The survey is really a monumental undertaking and on a large scale will study cancer in relation to various environmental factors. It will involve approximately 500,000 families throughout the nation of which about 45,000 families will be enrolled in Texas. The enrollment began in October.

Because the cost of such a survey would be prohibitive if it were to be undertaken by a statistical research organization, some 50,000 American Cancer Society volunteers throughout the nation, approximately 5,000 in Texas, will be needed to enroll the families for the study. At least one person in each family must be over the age of 45 years, while other members should be over the age of 30. These persons will be asked to fill out a confidential questionnaire.

In order that information will be kept strictly confiden-

tial, each subject will fill out a questionnaire personally, place it in an envelope, and seal it before returning it to the volunteer for transmittal to the ACS research center for analysis. The volunteer will not interview the subjects and will not see the completed questionnaires. Volunteers of the society will stand ready to follow each subject for 6 years to determine which of them die during this interval. Causes of deaths will be ascertained from death certificates. When cancer is mentioned on a death certificate, the physician who reported it will be requested to furnish additional medical information, for example, histologic type and stage of disease at time of diagnosis.

The primary target of the study is to ascertain the association, if any, between various environmental factors (such as occupational exposures, habits, diet, and factors related to the breast and female genital organs) and the later occurrence of cancer. It is hoped that this will yield clues to a number of possible causes of cancer.

Additionally, it is hoped that the cancer prevention study will provide information of major value in the development of more precise and exact lay education methods, techniques, and materials to control cancer.

The subjects who are enrolled for the survey will be asked detailed questions about "present physical complaints," and the answers will be analyzed in relation to cases of cancer diagnosed in the subsequent several months. In order to avoid biasing the subjects, questions are asked about physical complaints which are probably not related to cancer as well as about complaints which may reflect systemic cancer. Assuming, as is probable, that positive answers to certain of these questions are highly related to the presence of cancer, the data should be of value in persuading people with such complaints to see their doctor immediately. The aim of course is to reduce the factor of "patient delay" in the diagnosis of cancer.

Texas Division county units participating in the development of the survey and the number of families they are expected to enroll are as follows: Dallas 12,000, San Antonio 5,000, Austin 2,000, Wichita Falls 1,000, San Angelo 1,000, Houston 15,000, Fort Worth 5,000, Galveston 1,000, and El Paso 2,000. This represents about 4 per cent of the total number of families in Texas.

In the event that members of the Texas Medical Association are interested in additional details on this survey, they can be secured by writing the Texas Division, American Cancer Society, 5014 Bull Creek Road, Austin 3.

—JOHN A. WALL, M.D., Houston,
President, American Cancer Society,
Texas Division, Inc.

Challenge of Industrial Medicine

The phenomenal growth of the Texas Industrial Medical Association since its organization in 1955 amply substantiates the increasing importance of occupational medicine and the tremendous progress that has been achieved in this field in recent years. That occupational medicine is rapidly assuming the prominence which it deserves in comparison with other long recognized medical specialties is attested to by its having been given American Board status in 1955.

Originally, medical services in industries were organized solely for the treatment of occupational injuries. Hence, surgeons were employed and the program was one of treatment only. With the growth of workmen's compensation laws, preemployment physical examinations were added to the program. As industrial processes have become more complex, an ever increasing firmament of potentially dangerous agents has come into use and both industry and medicine have come to realize that even the

most lethal agents may become servants to society if the manner of their use is actively and intelligently controlled. Such control is best in those industries where adequately trained medical doctors have developed control programs based on sound principles of physiology and industrial hygiene.

Thus, industrial medicine is a service requiring of the physician a fundamental knowledge of industrial hygiene, toxicology, and human relations in addition to excellent training in medicine, and a background in surgery and psychiatry. The industrial physician must have a good understanding of the industrial environment of the worker and be able to transform this knowledge into adequate control and monitoring measures of many sorts. This makes it mandatory that the physician become thoroughly familiar with his plant. He must study its facilities, its lighting, ventilation, sanitation, temperature, humidity, and cleanliness. He must know the physical hazards, the radiation hazards, the fumes, dusts, air content, and so forth.

For many years organized medicine in Texas gave little encouragement to the practice of industrial medicine. Many in the professsion believed it to be a threat to the cherished doctor-patient relationship. This, of course, has proved to be unfounded. We must all remember that industry occupies a unique position in our social structure which lends itself readily to health education, to medical research, to the cultivation of good human relations, and to the promotion of good health in the community.

The position of the physician in industry must be fully understood by the private practitioner. With the emphasis on environmental control and preventive medicine, the industrial physician has little time or inclination to engage actively in therapeutics other than that dictated by situations of emergency or care of short term illnesses easily controlled by one or two visits to the dispensary. Furthermore, the physician in industry must maintain a sound professional position at all times. He must not be a tool of labor, or of management, or of the insurer. He should be an active protagonist of free enterprise and of such basic principles as the free choice of physician.

A free exchange of information between the private and industrial physician is essential for sound professional care. When correct diagnosis and successful treatment of occupational disease (the pneumoconioses, metal poisonings, dermatoses, hydrocarbon intoxications, and the like) so often depends upon an intimate knowledge of the working environment of the patient, who else but the industrial physician is in a position to provide that information? Likewise, how can the industrial physician, with any degree of assurance, properly place in a job or assist in the rehabilitation of the disabled employee without first consulting such employee's personal physician?

It is in this spirit that the members of our profession are asked to awaken to the growing stature of medicine in industry. Both management and labor have offered us the challenge. We must accept it. We cannot fail.

—J. G. BURDICK, M.D., Pasadena,
Secretary-Treasurer,
Texas Industrial Medical Association.

A GOOD THANKSGIVING

Said old Gentleman Gay,

"On a Thanksgiving Day,

If you want a good time,

then give something away."

—Marion Douglas

(Bartlett, John: *Familiar Quotations*)

Not of Primary Medical Concern?

At the latest New York meeting of the American Medical Association the Texas delegation introduced into the House of Delegates a resolution which would have put the American Medical Association on record as favoring repeal of the Sixteenth (income tax) Amendment to the Constitution of the United States.

No action was taken on the resolution by the House of Delegates because the report of the reference committee stated that "this resolution does not deal with a matter of primary medical concern."

If one will review today the trials, troubles, and tribulations of American medicine, he can hardly escape the idea that most of them spring from "economic" difficulties actually created by the rigors of the federal income tax. A current example is the matter of medical care of the aged. Loans must be begged from Washington to prepare, or repair, nursing homes for the aged. Insurance companies and doctors of medicine are expected to reduce their rates to the aged. Because income tax dollars are needed, doctors of medicine have found it difficult to get the same benefits as industry when they apply to Washington for some relief in the income tax laws to permit them more adequately to provide for their own time of being aged. And all of this concern for the aged upon the part of some "responsible" government officials comes after the government for years has extracted from these aging persons a thoroughly unconscionable tax. Because certain government officials get "concerned," some medical officials get all worked up about the "plight" of the aged who have been taxed into penury and dependence, while they forget (because it is not a matter of primary medical concern) the plight of the children of today and tomorrow who can never hope to pay enough tax to assuage the heartaches of the spenders. Physicians are citizens and as citizens fear government because government can persecute in many ways.

Since when is freedom not a matter of primary concern to all American citizens, including physicians? If freedom concerns patients and medical personnel, it must be a matter of primary medical concern.

For those who may doubt that freedom is involved in the Sixteenth Amendment, let me make these observations: No surer way can be given to a government to control the people completely than to give that government complete control of the economy of the people. The Sixteenth Amendment says, in effect, that Congress may take 100 per cent of all gross incomes any time it gets good and ready to do so. Such power granted to a government is essentially a mandate to that government to become dictatorial. Our government is becoming progressively dictatorial and progressively feared. It makes little difference who the office holders in such a government are; the nature of dictatorship is written into our Constitution. Can we expect that a government given dictatorial powers, via the Sixteenth Amendment, will be deterred in its march to absolutism by what it would call "some silly little provisions" in the Constitution designed to limit its powers? Absolutism cannot tolerate individual liberty.

Is not, then, the Sixteenth Amendment a matter of primary medical concern?

—BRUCE A. KNICKERBOCKER, M.D., Dallas,
President, Texas Pediatric Society.

Dallas in December

The American Medical Association comes to Dallas in December. From the first through the fourth the clinical session with its variety of scientific programs, exhibits, and deliberations of the House of Delegates will give physicians much to see and do. Visiting ladies also will have a special program. Even the public will

be in on the act with a 100 exhibit health fair designed primarily for it.

Although this will be only the second time a major session of the AMA has been held in Texas (the annual session was held in Dallas in 1926), Texas and the national organization have had a long and mutually helpful relationship. Many Texas doctors have served in places of honor and responsibility with the American Medical Association. Among these are Dr. C. E. Cantrell of Greenville, who was a trustee from 1909 to 1913; Dr. E. H. Cary of Dallas, who was trustee from 1925 to 1929 and president in 1932-1933; Dr. F. J. L. Blasingame of Wharton, who is the chief administrator currently with the title of executive vice-president and was a member of the Board of Trustees from 1949 to 1958, when he accepted his present position; and Dr. Milford O. Rouse of Dallas, who is now vice-speaker of the House of Delegates.

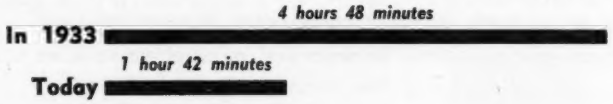
Texas representatives in the AMA House of Delegates have been a vigorous and vocal delegation. Throughout the years Texas votes and ideas have helped to shape the policy and actions of the American Medical Association. With eight delegates now authorized from the Lone Star State, considerable weight is given to Texas' point of view.

The Woman's Auxiliary to the American Medical Association is almost the child of Texas, for it was Mrs. S. C. Red of Houston, then president of the Texas Auxiliary, who saw to it that a resolution creating the national Auxiliary was introduced into the AMA House of Delegates in 1922. Mrs. Red served during the first 3 formative years of the Auxiliary as its president. Later Mrs. J. O. McReynolds of Dallas, Mrs. Frank N. Haggard of San Antonio, and Mrs. George Turner served terms in the presidency.

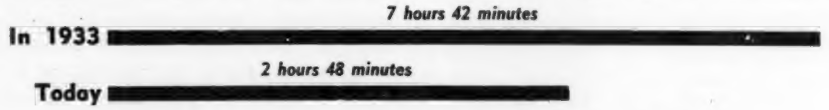
It is not often that Texas physicians and their families have the opportunity of seeing the American Medical Association in action without having to travel considerable distances to do so. The Dallas meeting will give an excellent opportunity for participation. Furthermore, it will be a fine occasion for Texans to show their hospitality and their support of their professional organization. By far the largest attendance at the December 1-4 meeting should be from Texas.

PHYSICIANS ARE NOT OVERCHARGING!

Man-Hours of Work Needed to Pay for Average MD Office Visit



Man-Hours of Work Needed to Pay for Average MD House Visit



The Data:

Year	Avg. Hourly Earnings	Office Fee Per MD	House Fee Per MD
1933	$0.44	$2.03	$3.40
1959	2.22	3.88	6.26

Source: Bureau of Labor Statistics—New Medical Material (July, 1959).

President's Page

IT PAYS TO WORK IN HARMONY

DR. YEAGER

Recently your President had the pleasure of speaking to the Texas Society of Architects at its annual convention. It was a refreshing experience to meet a group of gentlemen who have many of the problems which face our organization. It was an amazing experience to discover that they knew as little about the problems of Medicine as I did about the problems of Architecture. As the discussions progressed it became apparent how foolish we have been to work alone in our separate groups rather than combining to work as a professional team.

There are many problems that doctors, lawyers, pharmacists, architects, engineers, realtors, dentists, and insurance people have in common. It will make the road easier and our efforts more effective when we work together.

The Smathers-Keogh-Jenkins bill is of utmost importance to the self-employed such as the owners of barber shops, service stations, and all other businesses as well as to professional athletes, farmers, entertainers, professional people, and so forth. Earlier this year, representatives of seven of these groups made a trip together to Washington to learn first hand the status of this bill. We were graciously received by our Senators, and our opinions were much more respected because of the fact that we represented a large and varied group of people rather than an isolated single-minded group.

It behooves us to work in every community to unite the self-employed people in order to have a stronger and more effective voice in preserving our American way of life in which, instead of wanting to become a governmental pawn, a man wants the opportunity to work so as to achieve his goals.

F. W. Yeager, M.D.

ORIGINAL ARTICLES

Management of Late Pregnancy Bleeding

DUNCAN E. REID, M.D.

Boston, Massachusetts

ABOUT 5 to 6 per cent of pregnant patients experience some degree of vaginal bleeding in the last trimester, but only 2 per cent will prove to have placenta previa or develop premature separation of the placenta sufficient to demand further investigation and definitive treatment. The problem therefore is to identify and properly manage this latter group.

Despite the fact that there are greater therapeutic safeguards and facilities, the care of patients with late pregnancy bleeding can be more difficult than previously and for one particular reason. The current high cost of hospitalization tends to promote compromises in patient care, and this is especially pertinent to the patient with a suspected placenta previa where hospitalization until delivery is often mandatory and, for some patients, prolonged.

In recent years, there is a greater tendency to treat patients suspected of having a placenta previa expectantly, at least until the last month of pregnancy. The objective of this policy is laudable, for it hopes to postpone obstetrical interference until the fetus attains a state of maturity sufficient to insure its survival.[1, 2, 3, 8] In pursuit of this policy it has been implied that hemorrhage from placenta previa is never fatal unless there has been some cervical or uterine manipulation.[1] Maternal mortality studies, however, indicate that patients whose histories reveal recurrent episodes of bleeding continue to die from late obstetrical hemorrhage.[4] A disturbing feature of one study was the finding that 48 cases, or 16 per cent of the total deaths, were due to antepartum bleeding. Certainly in practicing conservative or expectant treatment, the mother's welfare must never be jeopardized in a sometimes futile effort to salvage the fetus.

I had an unhappy experience of participating in the care of a patient with placenta previa who died from recurrent exsanguinating hemorrhage with irreversible shock when about to enter the operating room for definitive diagnosis and treatment. This occurred despite a cesarean section performed within 20 minutes after the onset of spontaneous bleeding and with ample amounts of blood replacement. Other cases have been encountered where the patient undoubtedly would have lost her life had it not been for the fact that she was in the hospital under observation and was delivered immediately by cesarean section, receiving prompt and adequate blood transfusions. These patients, however, were near term, and all had either a complete or partial placenta previa, something which cannot be foretold with certainty until the patient is examined vaginally under sterile precautions.

In fairness to the controversy, it is difficult to document from the literature or personal experience a case of exsanguinating hemorrhage from placenta previa which occurred prior to the thirty-second to the thirty-fourth week of pregnancy. Consequently, the Boston Lying-in Hospital in recent years has adopted the policy of not hospitalizing patients with late pregnancy bleeding should it occur prior to the thirty-second week, provided the bleeding is minimal and the physical examination shows the uterus to be soft, nontender, and without spasm, and the fetal heart tones normal. The patient is instructed to remain at bed rest and to report recurrent bleeding immediately and is warned of the dangers of sexual intercourse. The patient is seen at frequent intervals thereafter, and between the thirty-second and thirty-fourth weeks of pregnancy an attempt is made to

Dr. Duncan E. Reid, professor and chairman of the Department of Obstetrics and Gynecology at Harvard University Medical School and obstetrician-in-chief at Boston Lying-in Hospital, delivered this paper before the Section on General Practice at the Texas Medical Association annual session in San Antonio, April 21, 1959.

Identification and proper management of vaginal bleeding in the last trimester of pregnancy is important. Expectant treatment is appropriate for some cases of placenta previa and abruptio placentae, but prompt and definitive action is called for in severe cases. Specific criteria for diagnosis and specific methods of management are suggested.

localize the placenta radiographically. Placentography performed before the thirty-fourth week of pregnancy is generally unsatisfactory. In the event that roentgen examination proves positive for placenta previa, the patient must enter the hospital for observation. On the other hand, if the placenta is clearly located in the upper segment of the uterus, the patient may return home and resume her normal activity. In the interim, should bleeding recur or the patient's history show more than a single episode of bleeding when first seen, it is mandatory that she enter the hospital immediately. Accordingly, this policy saves days of hospitalization without exposing the patient to any undue risk from recurrent hemorrhage. Except for a gentle speculum examination to exclude cervical lesions, in the absence of significant bleeding, these patients are not examined pelvically until the fetus reaches maturity, and then only by the double set-up technique to be described.

In considering more specifically placenta previa and abruptio placentae, the subsequent discussion will be directed to the aspects of management where differences of opinion exist.

DETERMINATION OF PLACENTA PREVIA

The amount of the placenta comprising the previa and its location govern the choice of the method of delivery and the clinical course of the patient. Over the years several classifications of the various types of placenta previa have evolved, and recently attempts have been made to develop one which would be acceptable to all. The following classification has been submitted by a group of American obstetricians, including Eastman and Greenhill:

A. Total placenta previa: The internal os is totally covered by placenta.

B. Partial placenta previa: The internal os is partially covered by placenta.

C. Low implantation of placenta: The margin of the internal os is encroached upon by the placenta so that the placental edge can be palpated by the examining finger, but the placenta does not extend beyond the margin of the internal os.

Like other classifications, it describes the position of the placenta, but fails to provide the criterion necessary to establish in every instance the amount of placenta involved in the previa. In other words, the type of placenta previa diagnosed is determined more by the degree of cervical dilatation than by the extent of the previa. For example, when the placenta abuts the edge of the cervix when it is 2 cm. dilated as determined by vaginal examination, the amount of placenta included in the previa is considerable. On the other hand, when the placenta is at the edge of the internal os and the cervix is 8 cm. or more dilated, the extent of the previa is obviously much less. According to the classification outlined, in both instances the findings fulfill the definition of a marginal or a low implantation type of placenta previa, but the clinical course and management are quite different. In the first instance cesarean section would be the preferred treatment; in the latter instance amniotomy and pelvic delivery is indicated.

The types of placenta previa are classified in this clinic according to the pelvic findings *as if the cervix were no more than 2 cm. dilated.* This standard for cervical dilatation was arbitrarily selected, for it represents the clinical situation which exists in the majority of patients with placenta previa when they are examined in the latter weeks of pregnancy and before the onset of labor. The classifications are as follows:

A. Complete type: The placenta covers the opening of the internal os.

B. Partial type: The placenta covers only a portion of the opening of the internal os and the lower uterine segment up to 8 cm. dilatation.

C. Marginal type: The placenta is at or within 3 cm. of the circumference of the internal os, a circumstance where the placenta would abut on the internal os were it about 8 cm. dilated.

D. Low attached type: The placenta is within 4 to 5 cm. of the circumference of the internal os near full dilatation (10 cm.). In other words, the examining finger, when introduced *through an internal os 2 cm. dilated,* can barely palpate the placenta. This often referred to as a low implantation of the placenta.

Although not taking into account the pelvic findings under a standard point of reference, a classification has recently been introduced into British obstetrics which also recognizes four types of placenta previa. In terms of the previously mentioned classifications, the complete type would be regarded as a fourth degree; the partial type, a third degree; the marginal type, a second degree; and the low attached type, a first degree placenta previa.

Placentography is helpful, but the definitive diagnosis of placenta previa is established by vaginal examination performed according to a definite technique. Rectal examinations must never be performed on patients who bleed in the last trimester of pregnancy. The examination will furnish little information and may dislodge the placenta sufficiently to produce a dangerous hemorrhage, with the examiner not prepared to arrest it. Consequently, the patient should always be examined under anesthesia in the operating room which has been previously made

ready for whatever obstetrical procedure might be indicated, including a pelvic kit containing Voorhees bags of various sizes and a Willett forceps, and an abdominal kit with the instruments ready for an immediate cesearean section. This arrangement of the operating room has become known as the double set-up preparation for the diagnosis and management of patients suspected of having placenta previa. This necessitates an obstetrical team comprised of a suture nurse and operating assistants properly scrubbed and gowned in the event that a cesarean section is necessary.

Following a routine preparation of the vulva and adjacent areas, the patient is draped and the cervix inspected for the possibility of a local lesion which might account for the bleeding. Next, a bimanual pelvic examination is performed. Initially the vaginal fornices are carefully palpated, and with the abdominal hand the examiner attempts to impress the presenting part into the pelvis. If it can be brought into close apposition to the lower uterine segment, it is suggestive evidence that the patient does not have a placenta previa. This maneuver indicates the possible location and extent of the placenta previa when the presenting part is easily palpable in one of the fornices and not in another. Some clinicians believe that palpating the vaginal fornices and estimating the thickness of the tissue between the examining fingers and the presenting part is sufficient either to exclude or establish the diagnosis of placenta previa. Although the difference in the thickness of the lower uterine segment is helpful information and may be used as a guide, the unequivocal diagnosis depends upon locating the placenta within the lower uterine segment. A number of instances can be recalled where the patient was examined vaginally without palpating the inner surface of the lower uterine segment and a placenta previa overlooked.

The final step in the examination, therefore, is to insert the examining finger gently through the cervical canal and verify the presence or absence of the placenta within the confines of the lower uterine segment. Examination is not complete until the examining finger has been swept around the inner surface of the lower uterine segment which represents an area comparable to the internal os when completely dilated (10 to 12 cm.). To avoid recurrent bleeding, the examiner should be cautious and gentle and locate the placenta without dislodging it.

TREATMENT OF PLACENTA PREVIA

For the patient who enters the hospital within 5 to 6 weeks of term, bleeding actively and with the fetal heart tones normal, the cause of the bleeding becomes somewhat academic and secondary to prompt obstetrical treatment. In a well conducted obstetrical service, patients with this degree of bleeding should receive the benefit of definitive obstetrical treatment within 30 to 60 minutes after hospital entrance. In the occasional patient who enters the admitting room near exsanguination, the immediate problem is to treat the shock and restore the blood volume by several rapidly administered blood transfusions. One or more venous cutdowns should be made to insure a free flow of blood, for in cases of this type complete vascular collapse is a constant threat. Here the preferential treatment is abdominal hysterotomy regardless of the condition of the fetus or the extent of placental involvement. In this precarious circumstance, if pelvic methods of management were attempted but failed to arrest the hemorrhage, irreversible shock might supervene.

It is readily admitted that in cases of central and partial previa vigorous bleeding may ensue from the pelvic examination, but with the operating room prepared and the obstetrical team ready (double set-up precautions), within 1 to 2 minutes the baby may be delivered by adominal hysterotomy and the bleeding controlled.

The question arises whether at the end of a waiting period one is justified in performing a cesarean section without recourse to pelvic examination under double set-up precautions. A cesarean section without a preliminary pelvic examination may be justified where the fetus is of borderline maturity, particularly in the case of previous obstetric disasters and the radiographic and abdominal findings are consistent with a placenta previa. In fact, there are some clinics which tend to treat all placenta previa suspects in this manner. This policy, however, must result in performing a number of unnecessary cesearean sections where the diagnosis of placenta previa cannot be substantiated. For example, a rupture of the marginal sinus may cause the patient to bleed several hundred milliliters, but the situation is readily controlled and successfully treated by amniotomy and pelvic delivery.

In most patients who prove to have placenta previa, however, the initial bleeding is not so alarming, often described by the patient as being a cupful or less in amount. She has often ceased to bleed by the time of admission to the hospital, or there is only a trickle of blood exuding from the vagina. Expectant treatment is practiced when the baby is premature and the uterine bleeding either has ceased or is so minimal in amount that the mother is not in danger. As stated previously, it is the hope that definitive obstetrical treatment may be postponed until the fetus has reached the maturity to survive.

In patients with a central or a complete placenta previa cesarean section is generally recommended

irrespective of the condition of the fetus. Methods which employ uterine tamponade are precluded in this type of placenta previa because of the likelihood of causing extensive placental detachment and uncontrolled bleeding. Patients with a partial placenta previa, in whom the fetus is mature and in good condition, are also delivered by cesarean section. If the fetus is malformed or extremely premature, and the bleeding is sufficient to demand termination of the pregnancy, vaginal delivery in a partial placenta previa is preferable to cesarean section.

Patients with a marginal or second degree, or a low attached or first degree, placenta previa, regardless of the status of the fetus, are treated by amniotomy unless there is a history of longstanding infertility or the patient is an elderly primipara. This presupposes that the release of amniotic fluid will allow the presenting part to enter the pelvis and produce effective hemostasis. Slight traction on the fetal scalp by Willett forceps will insure a more uniform pressure on the area of the placenta involved in the previa. Recently it has been emphasized that when the placenta is implanted posteriorly, the presenting part is less likely to enter the pelvis following artificial rupture of the membranes.[7] Interference with engagement is presumably caused by the interposition of the placenta between the presenting part and the sacral promontory. Accordingly, amniotomy in marginal or low attached types of placenta previa is more apt to fail as a therapeutic measure when the placenta is implanted posteriorly.

When vaginal delivery is elected in marginal or low implanted placenta, interference with fetal circulation by pressure of the presenting part against the placenta or impingement of the cord is a distinct hazard. The patient therefore must be under constant surveillance by the physician throughout labor, and the fetal heart tones must be recorded after each uterine contraction. The operating room must be kept in readiness for immediate cesarean section should fetal distress develop or bleeding of an alarming character recur. A summation of clinical experience would indicate that approximately one-half of patients with marginal or low attached placentae may develop fetal distress or recurrent bleeding during the course of labor and require abdominal hysterotomy to avoid fetal damage. Moreover, infection is a distinct hazard when the fetal membranes have been ruptured for several hours. Consequently, when artificial rupture of the membranes has failed to produce effective labor in these cases, it may be ill advised to postpone cesarean section indefinitely, that is beyond 8 to 12 hour.

Some controversy exists concerning the type of cesarean section employed in the treatment of placenta previa. Believing that it is better to avoid incising the placental site, thus minimizing blood loss, this clinic employs the classical type. Containing less muscle, the lower uterine segment contracts less well than the upper segment, a factor to be considered in the control of bleeding from the large uterine sinusoids beneath the portion of the placenta comprising the previa. In order that maximum contractility of the lower segment be maintained, it is better that it remain intact and not be incised.

Many clinics, however, favor the lower segment operation, feeling that it offers an opportunity to deal with excessive bleeding from the placental site should it occur following delivery. Although recommended, the placing of mattress sutures in and about the vessels of the placental site is not appealing, and, because of the friability of the tissues involved, is, in my opinion, a futile procedure. The time so spent markedly augments the blood loss. In case of brisk bleeding from the placental site, despite Pitocin drip, uterine packing should be considered. Although the latter procedure continues to be controversial, failure to use it is to disregard some of the principles involved in placental site hemostasis.[5] In the patient with several children, where the uterus fails to contract and there is extreme atony, supracervical hysterectomy should be performed forthwith.

EVALUATION OF ABRUPTIO PLACENTAE

The diagnosis of abruptio placentae, or premature separation of the placenta, presents no special difficulties, but an evaluation of the extent of the placental separation possesses an element of clinical uncertainty. The diagnosis should include some appraisal of the degree of the placental detachment, however, for the management and obstetrical treatment are governed largely by this.

The signs, symptoms, and laboratory findings enable one to place with fair accuracy patients into one of two groups, namely, the mild to moderately severe and the severe. In the former group, placental separation is generally not accompanied by shock and, if present, is transient in character. The uterus is soft and relaxed between contractions, and the fetal heart tones are usually of good quality. If uterine tenderness is present, it is restricted to a small area. The serosal covering of the uterus may show slight localized discoloration at cesarean section, but otherwise the organ has a normal appearance.

By contrast, patients with the severe form, who fortunately constitute only 10 per cent of the total cases of abruptio, reveal a characteristic and quite different clinical picture. There is shock of some degree, which at times is extreme. The uterus by palpation is firm and tender. The fetal heart tones are usually absent or grossly irregular and rarely

normal in rate. The uterus, when seen at cesarean section, has the characteristic purplish blue mottled appearance. Alterations in blood clotting have been observed in approximately one-third of these cases. It has been customary to make a diagnosis of toxic or nontoxic premature separation depending upon the presence or absence of pregnancy toxemia. The tendency has been to view the toxic group as patients with the severe form of premature separation, whereas the nontoxic patients are regarded as having moderate to mild degrees of placental detachment. The severity of the disease, however, is not dependent as much on the presence or absence of toxemia per se as on the extent of the separation and the amount of concealed hemorrhage. The assumption is unwarranted that in the absence of demonstrable toxemia the patient's disease is necessarily mild, an important factor to consider with respect to treatment.

TREATMENT OF ABRUPTIO PLACENTAE

When the fetus is premature, the bleeding minimal, and the physical findings essentially normal, expectant treatment is indicated. Cessation of bleeding calls for a policy of management as outlined in the treatment of placenta previa. If the pregnancy is beyond the thirty-fifth week, the cause of the bleeding should be investigated forthwith and the proper treatment instituted. Delay may only result in further placental separation, and a situation which could have been adequately treated by amniotomy and pelvic delivery may by waiting require a cesarean section in order to salvage the fetus.

In this clinic the preferred obstetric treatment for the milder cases of premature separation is the conservative method, namely, induction of labor and pelvic delivery. Cesarean section is utilized in the treatment of the milder form when effective labor fails to transpire within 6 to 12 hours after artificial rupture of the membranes, when bleeding continues after amniotomy, or when judgment dictates that further placental separation may result in fetal death. The latter is obviously an arbitrary decision which will be influenced by the age, parity, and medical and obstetrical history of the patient. Rarely is cesarean section required for the treatment of continued bleeding following amniotomy, but the exceptional case is seen. It is believed that the patient is not jeopardized through risk of infection provided the operation is performed within the period mentioned. Accordingly, in this group cesarean section is performed primarily in the interest of the infant. Even so, it must be realized that fetal mortality with immediate cesarean section approaches a significant rate of 5 to 10 per cent. Prematurity, hyaline membrane disease, and the effect of anoxia precipitated by the initial separation all take their toll.

By contrast, the treatment of patients with the severe form of premature separation is directed in the interest of the mother. In this group the summation of the stillbirth rate and the neonatal morbidity and mortality from the extreme intrauterine asphyxia attests to the futility of designing the treatment primarily to salvage the baby. Although one may be inclined to perform an immediate cesarean section, should the fetal heart be perceptible at the time that the diagnosis of severe premature separation is made, the relative maternal risk involved hardly justifies the procedure.[9]

The first step in the management of these patients is to determine whether a hypofibrinogenemia exists as determined by the simple procedure of a "clot observation test." The test consists of the withdrawal of 5 ml. of the patient's blood deposited into a clean dry test tube and observing it at frequent intervals for clot formation and stability. Normal blood will clot within 8 to 12 minutes, and the clot will remain intact for at least 24 hours. In case of hypofibrinogenemia the blood may clot, but if it does so it may undergo partial or complete dissolution within 30 to 60 minutes. The blood for crossmatch may serve for the initial test.[6, 9]

Simultaneously on entrance multiple transfusions are begun to combat shock and restore blood volume to normal. Where shock and circulatory collapse are a constant threat, venous cutdowns are routine to insure uninterrupted parenteral therapy. On the average, 2 to 4 transfusions are given during the first hour. Coincidentally, when there is evidence of hypofibrinogenemia, an equal number of grams of fibrinogen (Cohn's Fraction I) dissolved in dextrose and water are administered intravenously. Morphine and atropine are given to quiet the patient and prepare her for an anesthetic if needed. The operating room is prepared for any eventuality.

Early in the second hour after hospital admission a pelvic examination is performed in the operating room to verify the diagnosis and determine the condition of the cervix and to rupture artificially the fetal membranes. Under adequate morphine analgesia, and without an anesthetic if possible, the membranes are ruptured regardless of the length and dilatation of the cervix. The fact that productive labor may ensue even when conditions are unfavorable for induction justifies the routine rupture of the membranes before resorting to cesarean section. Moreover, there is suggestive evidence that the process of defibrination seems to decrease and that fibrinolytic enzyme activity diminishes or disappears entirely following artificial rupture of the membranes and the release of intrauterine pressure. If

this proves to be a constant response, this alone justifies the procedure.

During the third and fourth hours, additional blood and fibrinogen are administered on indication. It is anticipated that by this time the patient will have recovered fully from her shock, her vital signs will have stabilized, and labor will have begun. Under these circumstances and with the clotting mechanism known to be normal, she may now face cesarean section without undue risk. Indeed, in the absence of effective labor some 4 to 12 hours following artificial rupture of the membranes and in most cases Pitocin drip administration, cesarean section is performed. A prolonged and drawn out labor would seem unwise in a patient who has already experienced an episode of severe shock. With the belief that a skillfully given inhalation anesthetic in obstetrics is safer than a well administered spinal anesthetic, the former is preferred for delivery. A further reason for avoiding conduction or spinal anesthesia is the ever present hazard of impending or recurrent shock in these patients.

SUMMARY AND COMMENT

A few topics concerning the expectant and definitive treatment of late pregnancy bleeding have been selected and discussed. It is hoped that those chosen are some of the more controversial aspects. Certain statements reflect an opinion gained through personal experience and in some instances they may be at variance with those generally expressed in the obstetric literature.

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Treatment of Pulmonary Metastases with X-Ray Therapy

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MOST RADIOTHERAPISTS treat pulmonary metastases secondary to Wilms' tumors but take a pessimistic attitude towards the use of such therapy when lung lesions appear in patients afflicted with other forms of malignant diseases. There are two good reasons for this pessimism. First, it is well known that most pulmonary metastases are blood borne and are usually accompanied by similar malignant tumors in other internal organs, and second, the doses of radiation now thought to be cancerocidal will produce a fatal outcome when administered to both lungs.

I believe that any form of treatment which may improve a cancer patient's general condition is worth while even though a complete cure may not be obtained. No doubt many are unfamiliar with an excellent paper published by Evans and Leucutia[3] some 35 years ago in which it was demonstrated that relatively small doses of x-rays caused many pulmonary metastases to regress without producing lung damage. This paper is written to reemphasize the value of their technique, which can be carried out by any radiologist who has access to conventional x-ray equipment.

Dr. Charles L. Martin of the Martin X-Ray and Radium Clinic presented this paper before the Section on Radiology at the Texas Medical Association annual session April 20, 1959, in San Antonio.

Although radiation of pulmonary cancer metastases creates problems because normal lung tissue is easily damaged by doses commonly believed to be cancerocidal, palliative results may be achieved by smaller doses. A technique used in 14 cases which generally did not produce a serious pneumonitis is described and illustrative cases are presented.

TECHNIQUE

The serious pneumonitis and subsequent fibrosis which follow the vigorous radiation of normal pulmonary tissues were described many years ago by Desjardins,[2] McIntosh,[4] and many others. Even though this problem has been studied by many investigators, we still do not know the exact minimum dose capable of producing such changes. Since pulmonary metastases usually involve both lungs it is essential that a technique be evolved which produces little or no lung damage. Although the roentgen was not used as a unit of measurement at the time his original paper was written, Leucutia recently has informed me that he was administering doses to the midplane of the chest ranging from 1,000 to 1,200 r. Such calculations of necessity must be approximate depending upon how much air-filled lung occupies the treatment field. His treatment factors were 200 Kv. (peak), 1.3 mm. of copper and 1.0 mm. of aluminum filter, a target skin distance of 40 to 60 cm., large portals, and a treatment time of 10 days.

In a recent communication D'Angio, working under Neuhauser in the Boston Children's Hospital, stated that he attempts to deliver a dose of approximately 1,200 r to the midplane of the chest of a child with pulmonary Wilms' tumor metastases in a period of 12 days using portals measuring approximately 15 cm. on a side. The treatment factors are 250 Kv., a target skin distance of 50 cm., and a filter of 0.4 mm. of tin, 0.25 mm. of copper, and 1.0 mm. of aluminum.

It is obvious that both of these radiologists use almost identical doses in an effort to control pulmonary metastases without producing lung damage. Treves[5] adopted a much more intensive technique in treating a series of cases with pulmonary metastases from cancer of the breast at the Memorial Hospital in New York and published his results in 1938. The roentgen was not used at that time, but Edith Quimby has been kind enough to estimate the doses delivered to the midplane of the chest as varying from 2,200 to 4,500 r. The results were uniformly poor, and Treves stated that the untreated patients lived longer than those who received this form of therapy. His work makes it clear that such large doses cannot be used effectively in the treatment of large volumes of pulmonary tissue.

CLINICAL MATERIAL

In 1955 I decided to treat metastatic pulmonary lesions with doses of approximately 1,300 r delivered to the midplane of the chest. Conventional x-ray

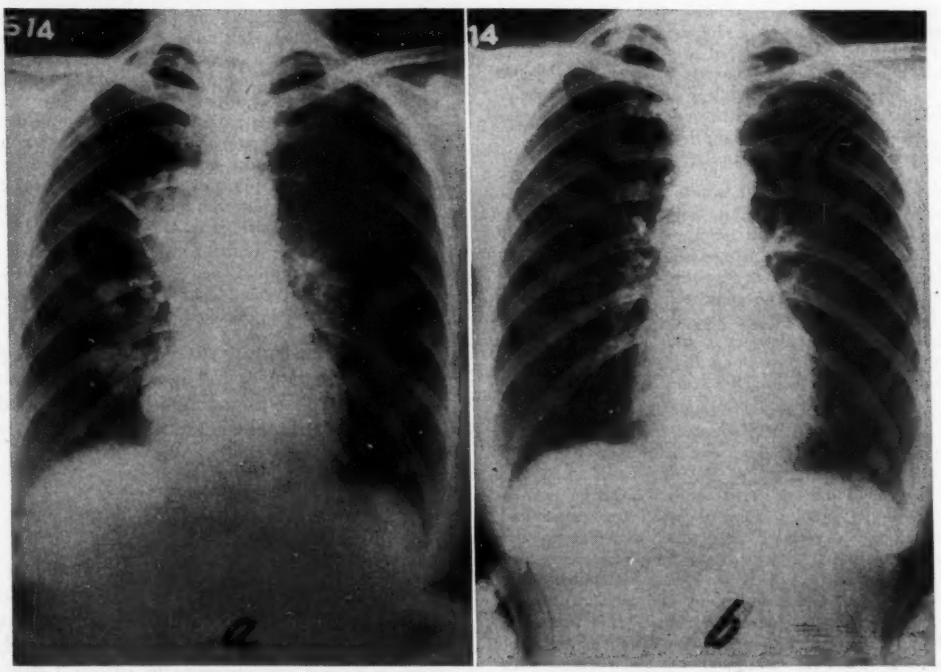

Fig. 1. Case 1. **a.** Metastatic lesions at both lung roots secondary to a carcinoma of the endometrium. **b.** Resolution of metastatic nodules 1 month after the delivery of approximately 1,300 r to the midplane of the chest. New metastases at the left base.

equipment (200 to 260 Kv.) was used with a filter of 0.5 cm. of copper and 1.0 mm. of aluminum and a target skin distance of 50 cm. Two opposing portals measuring 15 by 15 cm. were used, and doses of approximately 1,300 r were delivered to the midplane of the chest in 9 days. About one-half of one lung was radiated in this manner. If the other half was involved, it was treated in the same way after a rest period of 3 to 4 weeks. In most cases this procedure produced no ill effects, but complications appeared when an attempt was made to increase the dosage or the volume irradiated. The following case histories illustrate some of the problems encountered:

CASE 1.—This 63 year old woman had a hysterectomy for an anaplastic adenocarcinoma of the endometrium about 2 years before admission. For 6 weeks she had been treated for a nonproductive cough on the assumption that nodules demonstrated at both lung roots by roentgen-ray examination were due to a mycotic infection, but her symptoms were not relieved.

She received 1,200 r measured in air delivered to each of two opposing 15 by 15 cm. ports laid out so as to include the nodules at the lung roots shown in figure 1. A node felt in the left groin was removed for biopsy. The pathological report was "undifferentiated metastatic carcinoma."

At 1 month all pulmonary symptoms were relieved and the nodules at the lung roots had regressed almost completely but there was a new nodule seen just above the diaphragm on the left. At 7 weeks the base of the left lung received a dose identical with that given the lung roots and a recurrent nodule in the left groin received 2,100 r measured in air delivered to a 10 by 10 cm. port. At 3 months the nodule at the left base had disappeared almost completely and the nodule in the left groin showed a marked regression. However, the patient had some fibrosis at the right lung root, a finding which was observed in no other patient receiving a similar dosage.

CASE 2.—This 54 year old woman was treated successfully with low intensity radium needles for an adenoid cystic minor salivary gland carcinoma of the soft palate and nasopharynx 5 years before admission. A roentgen-ray examination at admission revealed multiple metastatic nodules in both lungs (fig. 2). The x-ray technique used for case 1 was followed for the upper right portion of the chest and then for the upper left chest after a rest interval of 3 weeks. At 3 months both lung fields were clear except for a tiny nodule just below the outer left clavicle.

At 5 months the lower right chest was treated because of pain in this region. At 15 months the lower left chest was treated because of a nodule seen behind the heart, and at 18 months the treatment of the upper left chest was repeated because a few recurrent nodules could be seen in this region. At 27 months x-ray fibrosis was demonstrated in the left lung root (fig. 2) and small recurrent nodules could be seen in the right base. Soon afterwards the patient developed intracranial and bone metastases which were controlled for another year with x-ray therapy and nitrogen mustard. She died with generalized metastases 3 years and 2 months after the first treatments were given to the chest and 8 years after the first treatment was given the primary lesion. She was kept free of symptoms and in good physical condition for 2 years after the pulmonary metastases were first discovered.

This case shows that pulmonary fibrosis can be produced by the repetition of even relatively small doses of x-rays given to the lung. It also illustrates the radiosensitivity of adenoid cystic carcinoma recently described by Vieta and Maier.[6]

CASE 3.—This 54 year old woman was treated successfully for a carcinoma of the anterior lip of the uterine cervix 2½ years before admission.

She had complained of hemoptysis and chest pain for 10 days, and a roentgen examination revealed 2 small nodules in the lower left lung field. X-ray therapy was delivered to this region using the technique described for case 1. At 1 month her symptoms had disappeared and a roentgenogram of the chest revealed no pulmonary nodules. She felt quite well for a year at the end of which time she again developed hemoptysis and a group of nodules in the upper lobe of the left lung was treated. She improved but returned in 17 months with the same symptoms, and the nodules shown in the right upper part of the chest in figure 3 were treated. She again showed symptomatic improvement, but the treatment of the lower left chest was repeated at 21 months because a new nodule was demonstrated behind the heart. At 2 years she was complaining of left sided chest pain and cough produced by the radiation fibrosis in the left chest illustrated in figure 3. She died suddenly at home 6 weeks later. The cause of death was not determined.

CASE 4.—This 57 year old man had been subjected to a radical resection of the larynx and pharynx for a cancer of the pyriform sinus, followed by radium needle implantations in the base of the tongue and cervical lymph nodes about 2 years before admission.

A roentgen examination revealed multiple metastatic nodules in both lungs (fig. 4). The technique described for case 1 was carried out so as to include the lesions in the upper left chest using 15 by 15 cm. ports. At the end of 1 month the patient felt much better and the entire right lung was then treated using 15 by 20 cm. ports. The same air doses were used and the dose at the midplane of the chest was estimated as approximately 1,400 r. At 2 months a chest film showed a marked regression of the metastases, but the patient was complaining of nausea and pain in the lower left chest. Because he had untreated nodules behind the elevated left diaphragm, another series of treatments was given to this region through 15 by 15 cm. ports which overlapped the original ports.

At 3 months he returned with a temperature of 105 degrees, cough, dyspnea, and cyanosis. He showed no response to antibiotics and died 4 days later. Unfortunately, no autopsy could be obtained.

Some have claimed that this man developed an acute exacerbation of his disease with lymphatic invasion, but it seems more likely that he died from an acute radiation pneumonitis produced by the therapy given to large fields.

DISCUSSION

The results obtained in my 14 cases are summarized in table 1. It is interesting to note that improvement in the roentgenographic appearance of the pulmonary lesions was observed in all but 1 case. Complete regression was observed in 5 cases and marked improvement was seen in 2 others. The regression

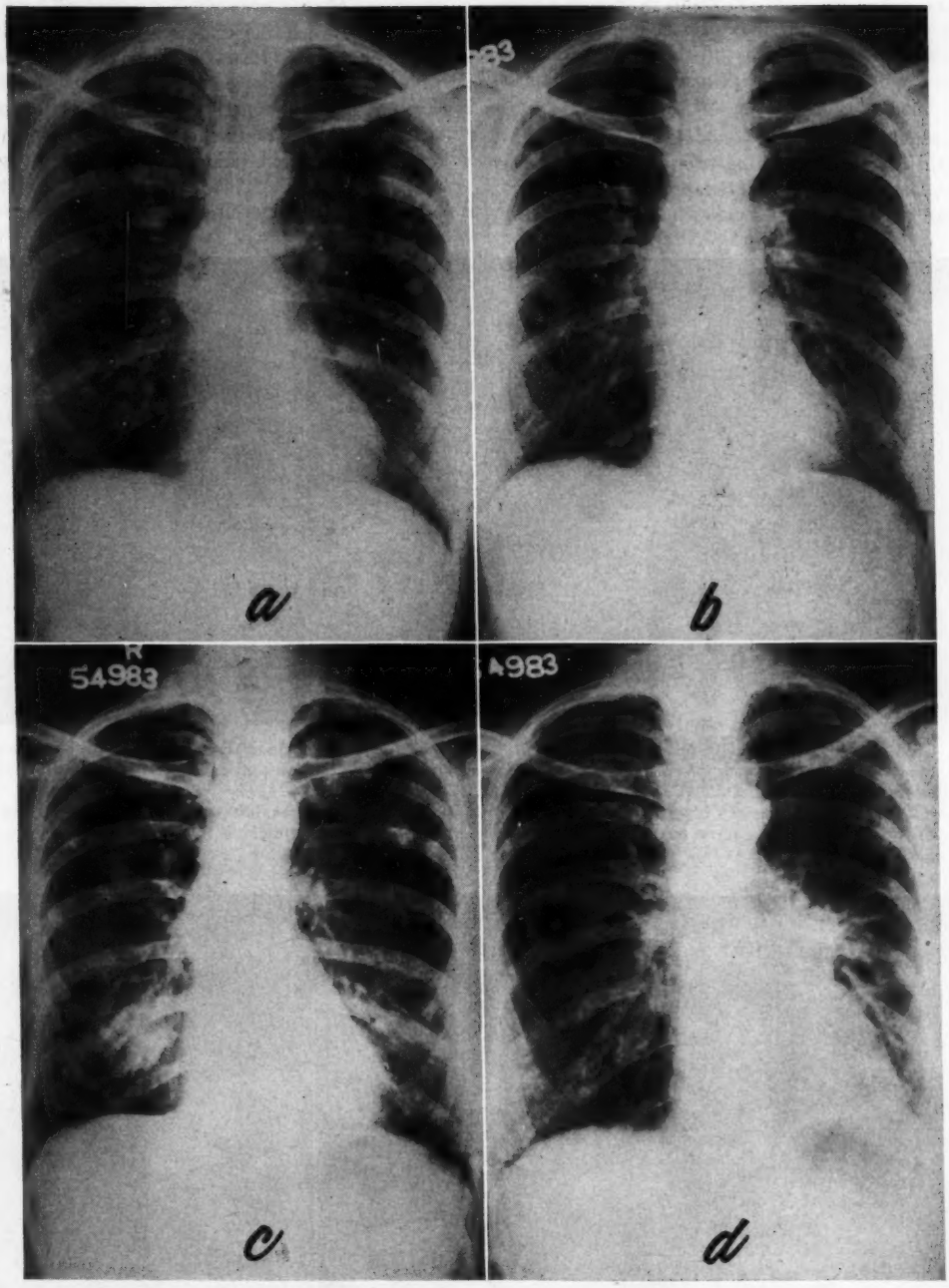

Fig. 2. Case 2. **a.** Multiple metastatic nodules in both lungs observed 5 years after the treatment of an adenoid cystic carcinoma of minor salivary gland origin in the soft palate with low intensity radium needles.

b. Appearance of chest 3 months after administration of approximately 1,300 r to the midplane of each lung.

c. Appearance of chest at 2 years soon after a repetition of the treatment of recurrent nodules in the left chest.

d. Appearance of the chest at 27 months showing radiation fibrosis at the left lung root.

of pulmonary symptoms closely paralleled the changes seen in the roentgenograms. Although adenocarcinomas are thought to be less radiosensitive than squamous cell lesions, two of the best regressions occurred in patients with primary adenocarcinomas in the endometrium.

Some of the pulmonary nodules completely disappeared for periods varying from 1 to 2 years, but unfortunately they eventually reappeared in the treated areas. It is difficult to decide whether they actually represented regrowth of the original nodules or new blood borne metastases. Evidence in table 2 indicates that the repetition of the original dose invariably produced fibrosis even when a period of 2 years had elapsed between the two treatments. It is obvious, therefore, that 1,300 r should not be given a second time unless the treated area is limited to a small segment of one lung. In the 1 case which developed a rapid fatal pneumonitis large volumes of pulmonary tissue were treated rather rapidly. After it seemed pretty certain that 1,300 r given to a 15 by 15 cm. port directed at one lung was safe, 1 patient devel-

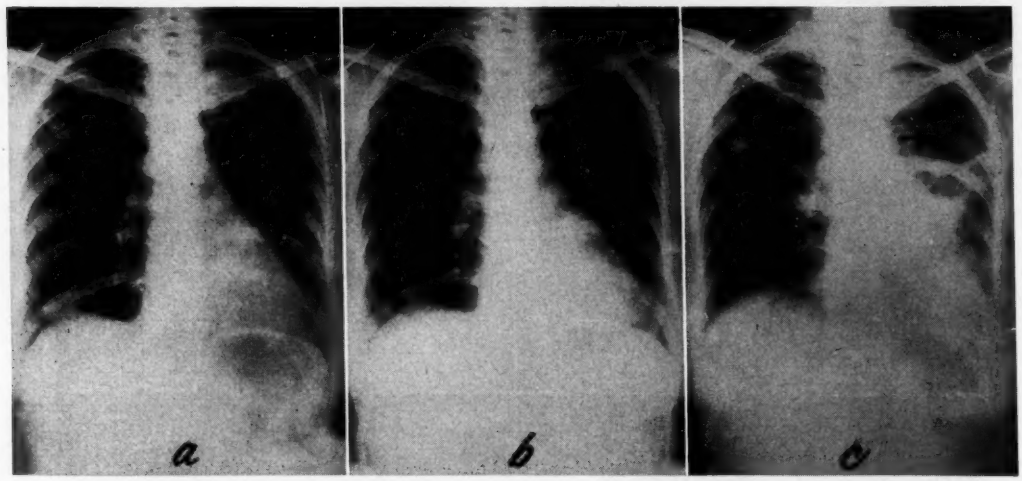

Fig. 3. Case 3. This patient developed metastatic nodules in the left lung 2½ years after a cancer of the cervix had been treated successfully.

a. Left chest clear 17 months after administration of 1,300 r to the midplane. The same treatment was given to the right upper chest.

b. Right chest clear. Treatment of the left chest was repeated over a nodule discovered behind the heart at 21 months.

c. Fibrosis of the left chest at 2 years in the area treated a second time.

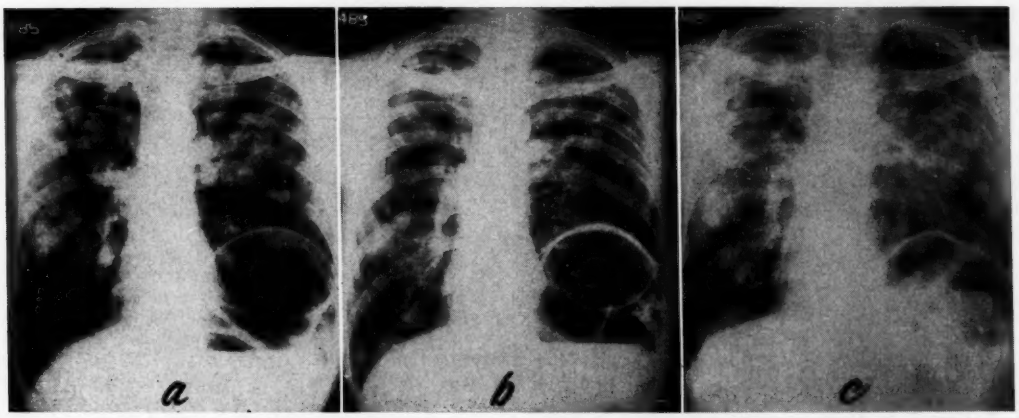

Fig. 4. Case 4. **a.** Multiple pulmonary metastases from cancer of the base of the tongue and pyriform sinus postoperative. The standard treatment was given the left lung, and 1 month later the entire right lung received approximately 1,400 r to the midplane.

b. Marked resolution of nodules at 2 months. The standard treatment was given to nodules below the left diaphragm.

c. Extensive pneumonitis observed at 3 months followed by a fatal outcome.

TABLE 1.—*Results Following Irradiation of 14 Patients With Pulmonary Metastases.*
Midplane Chest Dose—1,300 r to 1,400 r in 9 Days

Site of Primary Neoplasm	Pulmonary Metastases	Regression	Outcome
1. Endometrium	Bilateral	Complete at 3 mo.	Metas. left groin at 3 mo.
2. Soft palate	Bilateral	Complete at 2 yr.	Died at 3 yr. 2 mo.; gen. metas.
3. Cervix	Bilateral	Complete at 1 yr.	Died at 2 yr. 6 wk.; recur.
4. Hypopharynx	Bilateral	Almost complete at 3 mo.	Died at 3 mo.; pneumonitis
5. Endometrium	Unilateral	Complete at 6 mo.	Died at 1 yr.; gen. metas.
6. Breast & cervix	Bilateral	Partial at 3 mo.	No symptoms at 3 mo.
7. Breast	Unilateral	Almost complete at 3 mo.	Died suddenly at 5 mo.
8. Eyelid	Unilateral	Partial at 4 mo.	Pelvic metas. at 4 mo.
9. Face (sarcoma)	Unilateral	Moderate at 3 wk.	Gen. metas. at 3 wk.
10. Breast	Unilateral	Complete at 4 mo.	Died at 1 yr.; gen. metas.
11. Penis	Bilateral	Slight at 1 mo.	Died at 3 mo.; gen. metas.
12. Unknown	Bilateral	None	Died at 1½ yr.; bone metas.
13. Breast	Bilateral	Slight at 1 mo.	Alive 1 mo.
14. Breast	Bilateral	Moderate at 2 mo.	Condition critical at 22 mo.

TABLE 2.—*Radiation Sequelae in Patients with Pulmonary Metastases.*

Case	2 Opposing Portals Treated Series Rt.	Series Lt.	Same Portals Treated Twice	Sequelae
1	15 x 15 cm. x 1	15 x 15 cm. x 1		Fibrosis rt.
2	15 x 15 cm. x 2	15 x 15 cm. x 3	Lt. lung	Fibrosis lt.
3	15 x 15 cm. x 1	15 x 15 cm. x 3	Lt. lung	Fibrosis lt.
4	15 x 20 cm. x 1	15 x 15 cm. x 2	Lt. lung	Fatal bilateral pneumonitis
5	15 x 15 cm. x 1		Rt. lung	Fibrosis rt.
6	15 x 15 cm. x 1 15 x 20 cm. x 1	15 x 20 cm. x 1	Rt. lung	Fibrosis rt.
7	15 x 15 cm. x 1			None
8		15 x 15 cm. x 1		None
9	15 x 15 cm. x 1			None
10	15 x 15 cm. x 2		Rt. lung	Fibrosis rt.
11	15 x 15 cm. x 1	15 x 15 cm. x 1		None
12	15 x 15 cm. x 1	15 x 15 cm. x 1		None
13	15 x 20 cm. x 1	15 x 20 cm. x 1		None at 1 mo.
14	15 x 20 cm. x 1	15 x 15 cm. x 2	Lt. lung	Bilateral fibrosis

oped a fibrosis 3 months after this dose was given to one hilus. These findings indicate that we still have much to learn about the production of radiation pneumonitis. If some medication capable of protecting normal lung tissue against radiation damage could be discovered, it seems obvious that more effective techniques could be devised.

In 1943 Boys and Harris[1] reported some rabbit experiments which indicated that heparinization prevented many of the lung changes produced by heavy irradiation, but they did not recommend this procedure for clinical use.

With the exception of 1 neurogenic sarcoma and 1 lesion of unknown origin all of the primary neoplasms in my series were of the squamous cell variety or adenocarcinomas. I find it difficult to explain the response of the metastases in lung tissue to doses which produce little or no improvement of similar lesions in other parts of the body. Some have suggested that changes produced in the delicate pulmonary vascular structures may play a role. This might also explain the pneumonitis and fibrosis which appear when the treatment is repeated.

SUMMARY

Marked improvement of pulmonary metastases from various types of cancer often can be produced by the administration of small doses of x-rays. In most cases a technique can be devised which does not produce a serious pneumonitis even when both lungs are involved.

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Psychiatry In Industry

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MENTAL HEALTH problems of employees and management are a major cause of time and production loss in industry. Emotional problems are the principal cause of the illness in some cases and in others complicate recovery and rehabilitation from organic disease or injury.

Donald Ross[7] has expressed well the present attitude of industry:

> There is no question as to whether an industrial physician will or will not deal with emotional and social problems and factors. The only question is as to whether he will deal with these effectively or not and whether he will or will not make use of currently available attitudes and techniques and knowledge toward his more effectively dealing with such problems and factors.

Mental health services including psychiatry, social work, and psychology have been established in many industrial health programs. Vonachen, Kroneberg, and Mason[8] have expressed the belief they are essential. Many of these health services are built into the medical services of the company and become a part of management. In some areas the unions have established their own health services with mental health facilities. This discussion will be oriented more toward the management sponsored health service, although many of the principles are the same, regardless of sponsorship. It has been pointed out[5] that while management takes pride in modern methods of production and technology, at times it fails to use the most modern knowledge in psychiatry and psychology, at least as reflected in the manuals used in some of the human relation courses in industry.

Mental health programs in industry must be viewed in terms of relevance to the purpose. The goals of the mental health program are the same as those of other parts of the health program. (1) Primarily the promotion and improvement of the emotional health of the workers and supervisors. (2) The detection of signs of stress or distress in the emotional and mental spheres. (3) The relief of stress where possible ("first aid") or measures directed toward preventing problems from becoming more serious. (4) The treatment of mental illness or providing for treatment elsewhere. (5) The rehabilitation of those who have become ill and who recover sufficiently to return to work.

The first three of these goals encompass problems peculiar to industry, while the last two are problems not directly involved with most health services.

These health measures not only are of theoretical and social significance in terms of the general betterment of the world in which we live, but they probably are related to employee morale and productivity, which in turn bear important relationships to the basic purpose of industrial enterprise—to produce a product at a profit.

A man's capacity for successful living is determined by his heredity, his life experiences, his general health, his education, and the resources and problems of the particular part of the world in which he lives. A person probably will be mentally healthy if he can cope successfully with the life situations he meets at home and at work. Less than 25 per cent of the average employee's time is spent at work, but it may be the principal contact outside his home. Many people must find within the job setting sources for personal needs not met at home. Furthermore, in our country gainful employment is essential to acceptance by one's colleagues, and it is necessary to rationalize or explain idleness or unemployment. One cannot reasonably expect industry to compensate for all the unhappiness that a man might encounter in the extra-industrial world, but fortunately the very elements in a job that make the job itself better for emotional health are the same properties that enable

Dr. Jack R. Ewalt, professor of psychiatry at Harvard Medical School and director of the Joint Commission on Mental Illness and Health, presented this discussion before the meeting of the Texas Traumatic Surgical Society and the Texas Industrial Medical Association Sunday, April 19, 1959, at San Antonio.

The promotion of emotional health is possible in any industrial setting, provided that careful planning goes into it and competent persons handle it. The need also is stressed for further research in industrial psychiatry.

a person to find support and relief for tensions originating away from work. It is obvious that tensions developing as a result of problems on the job also will reflect themselves in problems in getting along at home.

This is not a course in psychiatry, sociology, or psychology, however, and our attention will be focused on the industrial situation itself.

ELEMENTS OF EMOTIONAL HEALTH

A worker needs most of all a sense of personal acceptance. He needs to feel he is accepted by the working group and in the industry at large as someone important and essential to the progress of the job. He also, and more importantly, must feel acceptance of his own unique person, that is, acceptance of him, himself. This is so important that if, for any reason of religious, racial, or personal difference from the group, he feels that he is not liked or accepted, he will react in a variety of ways, depending on his own personality and past experience. Some common ways are to withdraw and become isolated, having no personal contact with those about him and as few work contacts as possible. Others become cantankerous, aggressive, and delinquent in a desperate effort to call attention to themselves, because for some people any kind of attention, even critical attention, is better than rejection by the group. Acknowledgment of his presence by his fellows through conversation about ball scores, the nature of his work, new cars, and so forth, may be enough to make him feel accepted. Assignment to special jobs within his capacity, placing him on an employee recreation committee, or some similar task, may succeed in making a person feel accepted and a member of the group.

Ling[4] has expressed it as follows: "To enable people to remain mentally healthy and at peace with themselves, they must feel that what they do in life matters."

Closely related to the sense of personal acceptance is a need to feel that the work that is being done is important. Obviously, in the complicated modern industrial machine, the task of every person, even the clean-up man, is one of some importance to the final success of the project. One task of supervision is to make workers feel that they are important to the operation and when they do not show up for work that they are missed. A worker who feels that he is personally accepted by the team, that he would be missed personally, and that his friends on the job will be inconvenienced if he fails to show up is more apt to come to work when he has a mild cold or a severe hangover than if he feels he is contributing little and that things will go on essentially unchanged without him.

A worker needs a sense of security, that is, emotional or personal security: a belief that life will go on and that one will be able to continue to work even in the face of some criticism or disturbance on the job. This is extremely important in management, and the greater the responsibility of the employee's position, the more important becomes his sense of security and his confidence in his own ability. Studies of worker relationships in hospitals and in industry show that many of the problems between employees and within the individual employee group originate in feelings of insecurity and of being threatened. For example, a worker repeats an error; the supervisor becomes angry and "chews him out." If analyzed, the anger of the supervisor may be found to be partly justified in the situation but it may be due largely to the fact that the supervisor feels his own superior will think he is doing his job poorly if he permits such things to go on in his section. His wrath and anger at the offending employee will be met with similar anger or wrath by the employee, or perhaps by resentment and inward fuming, depending on the particular employee and his relationship to the supervisor. In most instances, the employee will have guilt feelings at having committed the error, and the aggression of his supervisor only threatens him further. At the same time, however, it enables him to take some of the blame off himself and turn his aggression back on the superior who is misunderstanding him and treating him badly, because the equipment, the tools, the light, or something besides himself is clearly at fault. The supervisor, by being a little more secure about his own competence to do his job and giving the erring workman a chance to explain his side of the present situation, would have accentuated the worker's guilt feelings a little. With guilt feelings at work, the supervisor could reprimand according to the significance of the error with better results in terms of his future relationship with the employee. The importance of a feeling of personal security cannot be overstressed through all the echelons of management and supervision. I repeat, the more important the position of the person, the higher he moves in management circles, the more important is this particular factor as an element of the mental make-up of an employee.

An employee should have a clear concept of his responsibilities, duties, and privileges in any particular work situation. This seems a funny thing to say to people who are working in industry, but workers may be assigned to jobs without any clear concept of where to look for guidance. They may have an unclear concept of what is expected of them. Fortunately, as management practices have improved, these situations occur less often.

Clear-cut lines of authority are important, particularly as one gets into the higher echelons of management of large and complex business operations. At the lower level the production line worker's relationship to his immediate supervisor is usually clear. In the higher echelons of management, however, lines of authority often become a little vague, and one may find himself working for two or three different bosses. Often the factors of security, the importance of work, and even the sense of personal acceptance are threatened in individuals because the lines of authority are not clear-cut. The top boss may go over or around one of his subordinates to reach somebody at another level, usually with the professed intention of greater effectiveness. But such motivation should always be suspect. A person given responsibility and authority must also be given support and a relatively free hand within the general principles that have been laid down in the delegation of authority. It is extremely important that the lines of authority in an administrative system be separated clearly from those of the so-called staff functions that must go on in a large operation. Again, these are facts well known to management, but in consulting with persons who come from the working sphere, one often finds that confusion in line of authority, improper delegation of authority, and confusion of staff and administrative functions are a major cause of difficulty. The beautifully outlined and illustrated manuals of organization are not always a part of the conscious operations of the persons in management, and this block may serve as a major cause of discontent and disturbance. Some large companies intentionally divide final administrative responsibility and authority, the surest way to built-in executive ulcer and discontent which may be reflected all the way down through the industrial system.

Employees need to have some concept of what the future holds for them in a particular company or plant. Workers who move from one company to another may do so because they have no clear concept of what they might look to in the future within their own plants. The highly competitive and insecure position of the junior executive often stems from this particular cause. Although it is true that one can have only so many generals and so many soldiers, a little more thought in planning and informing subordinate persons of the means and ways of working up through the administrative echelon can do much to promote security.

Studies by sociologists have shown that persons working in groups will establish their own informal system of leaders and devise other ways of getting the work done as required by management if leadership is not supplied by the superior. It also has been shown that work groups can be healthy and productive only if the individuals in them develop allegiance to the group and find ordinary human satisfactions in it. Persons who do not find satisfaction within the group tend to become isolated from it and produce problems. The solution of firing the maladapted person, or transferring him, merely postpones the final handling of the problem.[9]

We also must recognize that the organization of the modern industrial plant tends to produce emotional unrest and ill health. Whether or not this is absolutely essential, I do not know, but the administrative patterns and organizations now thought to insure high productivity have within them elements that run contrary to our present knowledge of the efficient functioning of human beings.

Argyris[1] has organized these into seven propositions:

1. There is a lack of congruency between the needs of healthy individuals and the demands of a formal organization. By this, he means the repeated levels of supervision implicit in the concept of the span of six (the concept that a person cannot effectively supervise more than six people working under him), and so forth.
2. The resultants of this disturbance are frustration, failure, short-time perspective, and conflict.
3. Under certain conditions a degree of frustration, fairly short-time perspective, and conflict will tend to increase.
4. The nature of formal principles of organization causes the subordinate at any given level to experience competition, rivalry, and intersubordinate hostility, and to develop a focus toward the parts rather than the whole.
5. The employee adaptive behavior maintains individual self-integration and simultaneously impedes adaptation with the formal organization.
6. The adaptive behavior of the employee has accumulative effect, feeds back into the organization and reinforces itself. (Things go from bad to worse.)
7. Certain management reactions tend to increase the antagonisms underlying this adaptive behavior.

A plan that would improve the general mental health and adaptivity of employees should be based on basic knowledge of dynamic psychiatry and dynamic sociology and a study of the problems within that industry by persons experienced in the industry, using consultants knowledgeable in these other fields.

POOR EMOTIONAL HEALTH

The signs of poor mental health are familiar and can be summarized as ineffectiveness. The common ones are absenteeism, accidents, illness, frequent "colds," muscle strains, alcoholism, or plain lack of desire to come to work, usually called "poor morale."

More serious signs are resignations, requests for transfer, and trouble-making in the shop in terms of quarreling, low productivity, damage to machines, or injuries to personnel, particularly themselves.

There have been few studies in this area. Some[2] were unable to show consistent relationships between employee attitudes as reported and production. This is an area that needs further research. Within hospitals similar studies have shown that improved employee attitudes definitely increase productivity, that is, a discharge of recovered patients. Work now in progress[6] shows that an individual worker's absenteeism and sickness pattern develops early in his industrial career, and that not only are there differences in patterns characteristic of individuals, but also significant differences between male and female employees. Some of these differences in sex the researchers relate to accepted patterns of behavior in the world in which we live. Some other work[6] has shown that illness among industrial employees follows a patchy pattern for the individual, that is, he has a group of sicknesses and then is well for a time. Illnesses tend to be of the same general type and are correlated with periods of personal stress and distress rather than with working conditions, climate, exposure, and other elements thought to be important in explaining the occurrence of illness.

All of this only emphasizes the urgent need for further research in group management for different industries. Industries employing large numbers of machinists, or handworkers, or industrial construction workers, where persons work in larger groups, perhaps have different problems than, for example, the operation of a chemical plant, or a petroleum refinery, where large portions of the work deal with operators who will work alone, or in very small groups. In hospitals a small number of employees work with a large group of patients. In all instances, however, the employee is a member of a larger group with peculiarities that are not too well understood. We do now, however, recognize that an organization of employees and the personnel of industry and its plant make up a significant social system that has self-perpetuating properties of its own that must be better understood if these combinations are to work effectively.

EMOTIONAL FIRST AID

More enlightened industries, unions, and other employ organizations now recognize that the first step in the health of the employees of an industry and the health of the industry is to take a significant interest in the activities and welfare of the community in which the plant exists. This means an interest in and fostering of work opportunity and recreational, educational, and health facilities within the community. The emotional and moral climate of the community is one of the most constructive things toward producing an over-all healthy population of employees.

In spite of the design of ideal management operations to prevent the development of emotional crises, some inevitably will occur. Into the health and personnel system must be built some kind of preventive or emotional first-aid program.

The purpose of this program is to allow persons to blow off steam, ventilate their grievances, and, if possible, bring about the solution that will prevent chronic emotional stress or major emotional illness on the production line. Supervisors at the lower echelon who are secure enough in themselves and skilled enough to permit temper tantrums or bursts of profanity from angry employees to go unchallenged at the moment, but to be discussed with them later after the heat of anger has subsided, will do much to prevent many major problems. At this interview, limits also can be set on future behavior, and punishment to be assessed for violations can be defined. There should be available, in addition, either a company nurse, a counselor, or a physician, to whom the employee can go in confidence to discuss his grievances. This has two main values. In the first place, in discussing the grievance, the employee frequently gets a new slant on it and often wants nothing further done about it, as he sees what his own contribution has been to the situation. Secondly, the employee often feels better after he has been able to "get it off his chest" and thinks the matter not of enough significance to make anything further of it.

Supervisors and counselors must have a psychiatrist available to them, or at least an industrial physician grounded in the rudiments of psychiatry for consultation in handling these problems. If it seems that the situation is a chronic recurring one within the organization, the physician may see fit to call it to the attention of his administrative associates with the intent that management should rectify the situation. Problems of an emotional sort have a tendency to crop up in particular sections, or particular echelons of any organization or industrial plant, simply because some persons in supervisory positions do not have the ability to build into the work situations conditions which promote emotional health. As an example, persons with outside problems often bring these problems to work with them, and an understanding and supportive supervisor and fellow employees can often help work these problems off on the job. At times supervisors are so insecure themselves that this is not permissible. At times the supervisor himself is so insecure that he is the cause of pathology within the work situation.

Counseling services should be available not only to the lower echelon employees but also to the supervisors. Persons in major executive positions should have some access to a broadly educated physician, if possible, a sensibly trained psychiatrist. Supervisors and senior management must have an opportunity to discuss their problems and to ventilate their own insecurities and to draw from some trusted figure support and guidance for their own anxieties as they in turn attempt to cope with those who seek support from them. The industrial psychiatrist will not advise them on management decisions, but will advise them on their own blind spots in relation to themselves and to other people so that they can use this knowledge meaningfully in arriving at their own decisions. Top management must support persons below them even in a particular situation with which they do not readily agree. For example, not long ago in my own shop two persons in senior position made a decision in a very difficult type of case which in the long view proved to have been in error with tragic results. In the confusion that resulted, the person in top management (me) could disavow responsibility and truthfully state that the blame was on the subordinates. On the other hand, I could, and did, acknowledge with regret that an error had been made but did not specify who made it and pointed out that within the general theory of operation and decision which had caused the error, most cases turned out well. This latter course was in my opinion essential if the subordinates were to continue to make independent decisions and operate effectively and efficiently. Privately, I took pains to point out how a similar situation might be better handled in the future, but this was in terms of reasonable discussion of alternatives. Their own guilt feelings took care of the punishment. These two persons instead of being fearful, uncertain employees not confident of backing by their superiors have continued to operate efficiently, effectively, and very successfully in a highly complicated and difficult field.

Most persons writing on this subject recommend teaching interviewing techniques to personnel at the supervisory level. This would be satisfactory, provided that the interviewing technique is used with a clearly defined role of allowing personnel to express difficulties, complaints, and work off their own stresses and anxieties. It should not give the superior a feeling that he is responsible for, nor even a desire to conduct therapeutic interviews. The supervisor should have clear-cut lines of authority and should be told how an interest in his employees, and the use of interviewing techniques to build up positive relations are qualities of leadership. It also should be pointed out that one of the most important qualities of leadership is to listen to ideas and suggestions from all groups, to hear clear-cut complaints, disagreements, and objections, but to close the interview with a clear-cut and specific decision about which people can form their goals.

TESTS

Various tests today play a significant role in management of personnel and emotional health programs. Tests can be useful, provided they are used with a specific goal in mind and with the full knowledge of their limitations. Being familiar with them, we are not prone to make too extensive an interpretation of tests in medical practice unless they fit the rest of the picture. The same limitation applies to psychological tests, particularly in promotion of personnel. As one factor to be considered they are important, but as a principal factor, evidence does not support their extensive use. Some[7] have advocated the use of observations of the employee to note how he handles his relationships with people. This may be done in role-playing techniques. Decisions about promotion, however, can best be made by having responsible executives or supervisors observe persons in their daily work and use this experience for prediction of their performance in the new job. Other workers[8] have shown that the more observations brought to bear on various types of personnel selection proceedings, the better the predictability of future performance on the job. A series of tests with multiple discussions by persons who have the employee under observation for a period of time plus the work record may be a better method for deciding promotion or mental suitability for a particular task than any test or battery of tests. Ways of objectifying observations, if properly used, can be helpful. The so-called performance charts and recording systems which are available, if properly used, can increase greatly the objective reporting by supervisors. Persons operating these observational recording systems must be sure the supervisors maintain their level of interest in the records. Too often recording on these charts is regarded as a chore and there is either a tendency to repeat the previous observations, or if after a time the supervisor feels the chart looks a little odd, there may be random variations in the recording coming not from the employee's behavior but from the supervisor's preconceived ideas as to how the chart should look. In other words, there may be an attempt to make the chart look valid rather than an attempt to make the chart reflect the employee's behavior on the job.

In high echelon positions, tests for selection of employees may be helpful but must not be the sole criterion. There is an opportunity for a kind of "racket" to develop at this level. If a top industrial

post is open and if management people have surveyed the field and selected three or four people as the best candidates for the post and then subject these three or four people to testing to select "the best one," they are wide open to operations by unscrupulous persons. It would seem unlikely that competent management would have thinned out a large field to three or four people without having selected three or four people, any one of whom could effectively manage the job. The person selected by test may not be the best one for the job, but he may be the one who most fits the tester's concept of what the job is. If management knew the personality traits needed for the job, tests could be of greater help. Business firms are often satisfied with the tests because anyone the tester picks does well. So far as I know, top management has never picked from the four or five tested the one that the tests indicate would be poorest on the job and put him in the job to see whether or not he would be successful.

In summary, tests are helpful but, like any laboratory test in medicine, not infallible and should not be used to blunt one's clinical judgment, but rather to sharpen one's methods of observation.

Part of the industrial mental health program is the treatment of those persons who become seriously ill, and another is the rehabilitation of those who have become ill and who have recovered sufficiently to return to work. One can say that the treatment of sick people is probably best handled by referring them to outside psychiatrists. The personnel policies and plant policies are of importance in the rehabilitation program.

In referring persons to outside psychiatrists, there are some general principles to be observed. In the first place, poor treatment may be as bad, or worse, than none at all. Good treatment usually takes a long time. If persons are to be referred for psychotherapy, a long time proposition in itself, the patient should continue in his job if his behavior permits. The company doctor must insist that the patient choose a person who is, by training and by reputation, a competent psychotherapist. Many physicians do psychotherapy by endlessly chatting with patients during the interview hour and accomplishing nothing. Since even the best psychotherapy tends to take months and at times years, it is not efficient to assign patients to an incompetent therapist and then after many months come to the conclusion that maybe the physician does not know what he is doing. The best of therapists will have many failures in long term, difficult, dependent, and neurotic persons. It is essential that the referring physician have confidence in the therapist selected, and this can be true only if he is selected with the greatest of care. If necessary, consultation should be held with persons of well established reputation as to which therapists are capable.

SUMMING UP

It is possible to promote emotional health in any industrial setting, but to do so takes careful planning by persons who understand the workings of individuals and of groups; these persons must work carefully with individuals who understand the peculiar situations in the particular industry and in a particular plant of the industry. Only by careful coordination of these efforts and continuous supervision can a successful industrial emotional health program be established. Without care in planning, the reverse of the desired effect may ensue.

Further research is needed to increase our knowledge in industrial psychiatry. Hiring a consultant, or providing various testing procedures without careful long-term planning and operation within the plant, may be helpful in some small way, but it also may result in more anxiety and emotional disturbance than was present in the basic situation. The financial and human resources involved make it worth while for industry to continue to expand its developments in this area. Slogans, tests, and pretty brochures are not a substitute for hard work and common sense in organizing any kind of health program. Good intentions are not a substitute for either competence or professional training.

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United Fund and Community Chest Months

The months of September, October, and November have been designated this year as United Fund and Community Chest months by Governor Price Daniel, who has urged generous support of the community's efforts to provide for its own health, welfare, and youth needs.

Establishment Of Appendicitis As a Surgical Entity

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THE DIAGNOSIS and surgical treatment of appendicitis are so well established that they are taken for granted by every student of surgery, and the symptoms have become so familiar that they can be described in a classical pattern. Acute appendicitis is a primary consideration in any acute abdominal condition, and thousands of laparotomies are performed for its treatment each year. The symptoms of appendicitis are so commonly known that the more intelligent layman may present himself for examination because he is suspicious of the disease. Yet only a few years ago appendicitis was unknown as a pathological or clinical entity despite the fact that postmortem examinations have been made as long as the written history of man. The recognition of the disease and the realization that it could be corrected surgically are probably the single greatest step made by the modern surgeon.

APPENDICITIS BECOMES ENTITY

To whom do we owe credit for recognizing this extremely common condition and establishing it as a true clinical and pathological entity? Probably to Reginald Fitz[1,2] of Boston, who, in October, 1886, in the *American Journal of the Medical Sciences* published a masterful article entitled "Perforating Inflammation of the Vermiform Appendix, With Special Reference to its Diagnosis and Treatment" that outlined the etiology, pathology, and diagnosis of appendicitis and suggested that early laparotomy was perhaps the treatment of choice. Fitz collected 257 cases of appendicitis and contrasted them with 209 cases of typhlitis and perityphlitis and was able to conclude that "the extreme rarity of acute perforating inflammation of the caecum, as compared with that of the appendix, has not been made sufficiently conspicuous." He went on to discuss the pathology and clinical course of the disease, which he felt from his cases was most common among youths and healthy young adults, especially males. The differential diagnosis was not excluded; Fitz compared the symptoms of appendicitis with those of intestinal obstruction, septic abortion, psoas abscess, biliary colic, and renal stone. At a time when laparotomy was the treatment of last resort reserved for incapacitating ovarian cysts, Fitz even suggested in the first article that removal of the appendix might be the preferred treatment in the presence of advancing peritonitis. He suggested that if surgical therapy "is not instituted within the first 24 hours after the onset of the sudden and intense right iliac pain, to keep the bowels quiet must be the injunction," and urged absolute bed rest, liquid diet in small quantities, and sufficient opium to neutralize the pain. In a day devoted to the use of turpentine enemas, calomel, and crotin oil, Fitz believed that such treatment "may be the means of at once exciting a general peritonitis." If the peritonitis is well developed then "the promotion of the tumor, the circumscribing of the peritonitis is then to be awaited."

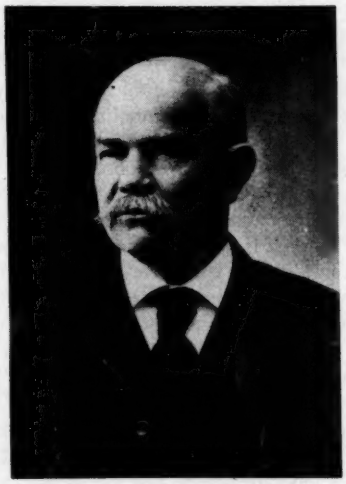

Fig. 1. Reginald Fitz of Boston in 1886 first established appendicitis as a true clinical and pathological entity. (All illustrations were provided through courtesy of the Rush Medical Library in the Presbyterian Hospital, Chicago.)

Fitz was able to state conclusively that "the pathologist looks for the seat and cause of the disease, and finds that in most fatal cases of typhlitis the caecum is intact, while the appendix is ulcerated and perforated. He sees that the so-called perityphlitic abscess is usually an encysted peritonitis. Furthermore, if an abscess exists in the pericaecal fibrous tissue, it is in most cases caused by an inflamed appendix."

Fitz was evidently of the opinion that he who is not familiar with medical history repeats it, because in this well worked out paper he carefully gave full credit to those in the 50 years preceding him who had shown some glimmering of the true nature of the disease so frequently found in the lower right

quadrant of the abdomen at sectio cadaveris. To James Copeland,[6] in his "Dictionary of Practical Medicine" published in 1834, Fitz gave credit for first clearly discriminating between inflammation of the caecum, the vermiform appendix, and the peri-caecal tissues. Fitz quoted from the publications of John Burne,[3, 4] physician to the Westminister Hospital in London, who in 1837 called attention to the differentiation of inflammation of the caecum and appendix; also Hancock,[14] who in England in 1848 advocated the drainage of appendiceal abscess in a 30 year old woman with subsequent recovery. Fitz credited With[34] for the first use of the term appendicular appendicitis in 1880.

According to Bockus[1] and Deaver,[9] the Frenchman Melier wrote of inflammations of the appendix in 1827 and even suggested that laparotomy might be of value in relief of the condition. His theories were substantiated by the frequent finding of abscess in the right lower quadrant, but his work was completely buried by Dupuytren, the then leading surgeon of France and perhaps of the world, who maintained that no organ so insignificant as the appendix could be held responsible when the large, thin walled, and seemingly vulnerable caecum was nearby. Dupuytren urged that the diagnosis of typhlitis and perityphlitis be used. Burne,[3, 4] who was quoted by Fitz,[12] published articles in 1836 and 1838 on inflammations of the caecum and appendix vermiformis caeci and presented the autopsy findings in 8 cases of fatal appendicitis. He speculated that perforation of the appendix was much more common than perforation of the caecum and could occur suddenly without previous history of bowel complaints. Burne reviewed the writings of Dupuytren and found that they did not mention the role of the appendix in abscess of the right lower quadrant.

Preceding Fitz, George Lewis[18] had presented 40 cases of appendicitis in 1856, but he had attributed the pathological condition to the lodgement of foreign bodies in the appendix. He carefully reviewed the existing literature on the subject and presented the autopsy findings in all of his cases. Despite his concern with foreign bodies as a causative agent, Lewis outlined rather accurately the symptoms of appendicitis. He described the onset of colicky pain with the final attack of severe pains about the umbilicus and in the right iliac region, with pain then deepseated and fixed in the right side. Lewis noticed that general peritonitis might then follow, and that vomiting and diarrhea attended the onset of the illness in only rare instances. He stated that "pain, which is always earlier or later present in this disease, is not, as would naturally be inferred, invariably located, at first, in the immediate vicinity of the caecum." Lewis made no suggestion for the treatment of appendicitis other than the drainage of the abscess and presented in detail the 1 report of such a procedure.

Willard Parker,[26] writing in 1856 while he was professor at the College of Physicians and Surgeons, made several pertinent observations on appendicitis. He stated "familiar as we are with the diseases to which the alimentary canal is liable, there is one part of it—the appendix vermiformis—the pathology of which is, to a great extent, envolved in obscurity." Parker realized that appendicitis in children did not localize in the right lower quadrant as it did in adults, and discussed the anatomical variations of the position of the appendix with reference to symptoms and physical findings in appendicitis. Parker had drained 1 appendiceal abscess 9 days after onset with a good recovery.

Certainly other observing surgeons and pathologists had questioned the role of the appendix in the inflammatory lesions so often found in the right lower abdomen, but it was Reginald Fitz who firmly established appendicitis as a clinical entity and suggested its cure.

CHANGING TREATMENT

Samuel Fenwick,[11] writing in *The Lancet* in 1884, discussed 5 cases of perforation of the appendix that he had treated in 12 months. He felt that the condition was rare, because he had found only 19 cases of disease of the appendix in the records of the London Hospital during the preceding 40 years. Fenwick described the old practice of venesection, purgation, and large doses of opium in the treatment of typhlitis and concluded that this treatment had been a failure; he said "theoretically it would seem much better if we could cut down upon the appendix as soon as the diagnosis is tolerably certain, tie it above the seat of the perforation, and remove from its neighborhood any concretion or decomposing material that might be the cause of irritation."

Dr. William Klingensmith is a practicing surgeon.

Although the diagnosis and surgical treatment of appendicitis are taken for granted today, it was not until 1886 that Reginald Fitz established appendicitis as a true clinical and pathological entity. Early in this century, surgery was recognized as the treatment of choice, and the way was opened for the development of modern abdominal surgery.

The teachings of Fitz were quickly accepted in this country. It is generally conceded[5, 16] that the first appendectomy done here was performed on May 8, 1886, by R. J. Hall[13] in the Roosevelt Hospital in New York City, where a 17 year old boy was treated for strangulated hernia with peritonitis. When Dr. Hall opened the herniated sac, a ruptured, gangrenous appendix was found, ligated, and removed. The patient recovered. In April of the next year, Thomas G. Morton[23] of Philadelphia for the first time made a preoperative diagnosis of appendicitis and successfully removed the diseased organ. This was a daring

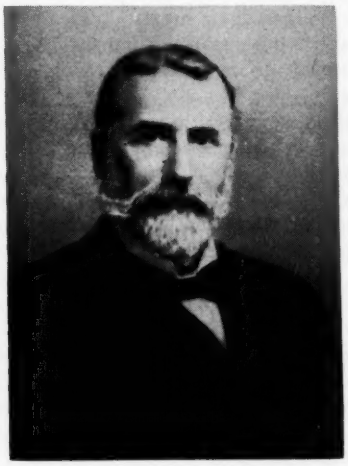

Fig. 2. Thomas G. Morton of Philadelphia in April, 1887, for the first time made a preoperative diagnosis of appendicitis and successfully removed the diseased organ.

procedure. In the report that Morton submitted to the Philadelphia Surgical Society we can see how precarious it really was. He recommended "keeping the bowels open so that peritonitis is avoided," but urged surgery "once pus has been diagnosticated." Dr. Morton irrigated the entire peritoneal cavity with a 1 to 1,000 solution of bichloride of mercury and carefully broke up all adhesions. He dismissed postoperative care with the remark that "postoperative treatment should consist in keeping the bowels in a fairly soluable condition and meeting threatening peritonitis by active purgation." The paper was concluded by the demonstration by Dr. Morton of a patient who had survived this procedure, certainly an object of amazement then as now.

Henry Marcy,[19] in an autobiographical paper written in 1910, stated that he was the first surgeon to perform an elective appendectomy between attacks; this he did in November, 1886. Henry B. Sands,[27] writing in *The New York Medical Journal* in 1888, reported the removal of a ruptured appendix after such a preoperative diagnosis had been made. He condemned the use of the exploring needle and advocated early surgery in ruptured appendix.

During that same year, 1888, Dr. Henry Smith[29] of Philadelphia addressed the surgical section of the American Medical Association on the treatment of appendicitis and strongly urged 5 grain doses of calomel until 20 or 30 grains had been given and suggested "the full use of stimulating enemata" containing soap and turpentine. If these measures did not avail, then saline laxatives were suggested before perforations occurred because "saline purgatives relieve congested vessels, increase the serous discharge, empty the caecum and favor the escape of the secretions of the appendix." Not content with this active nonsurgical approach, Smith went on to recommend that the patient be etherized and by palpation "endeavor to recognize the obstruction and favor peristaltic action." These things having failed "after persevering for forty-eight hours with this treatment, if relief is not obtained, I would at once resort to laparotomy under strict antiseptic precautions." Dr. Smith did not conclude by exhibiting a surviving patient, but this may have been due to the distance from Philadelphia at which the meeting was being held.

From these papers it can be seen that therapy was directed to measures that avoided laparotomy, and operation was certainly not to be considered until pus was present—until rupture had occurred. Laparotomy was held to be a serious and radical procedure and carried a high mortality rate. Because of the avoidance of early operation, the results obtained were uniformly bad, and it was quickly realized that early surgical interference was the only hope of improving results.

In that same year, 1888, other surgeons began to abandon the idea of purgation in appendicitis. Dr. Bull[32] of New York addressed the Medical Society of London on the diagnosis and treatment of appendicitis, and Dr. Robert F. Weir,[32] professor of surgery in the College of Physicians and Surgeons, discussed his paper. In his remarks, Dr. Weir stated that in a series of 100 patients operated on for appendicitis, only 17 per cent had lived when surgery was undertaken after the eighth day. Dr. Weir "looked askance at the cathartic theory and thought that the practice of giving purgation and enemata was all wrong." He quoted statistics to show that the mortality was 50 per cent under the old treatment and only 16 per cent since purgation had been abandoned.

An article by McBurney[20] entitled "Experience with Early Operative Interference in Cases of Disease of the Vermiform Appendix" appeared in 1889. McBurney wrote with feeling that "I hope that never again may I go every day to visit a threatening case,

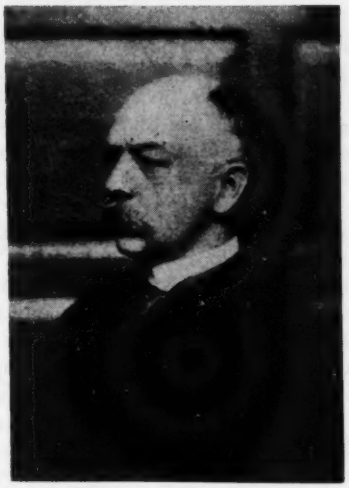

Fig. 3. Charles McBurney, who had written about operative interference with disease of the vermiform appendix in 1889, first described in 1894 the muscle splitting incision bearing his name.

waiting bashfully for the authority of a clearly defined peritonitis before I dare take action." In 1894, McBurney[21] first described the muscle splitting incision which bears his name and is widely used to this day.

Robert H. M. Dawbarn[7] of New York was probably the first to advocate routine inversion of the untied stump with a silk purse string suture in the caecum, a procedure he initiated in 1890. The Weir extension, so-called after Robert F. Weir of New York, was proposed by that surgeon in 1900.[3]

An 1893 edition of the surgical text by Keen and White[15] contains a discussion of appendicitis, but the differential diagnosis of this disease and paratyphlitis and perityphlitis is still considered at length. The disease was thought to be rare in children, and was considered to be frequently the result of foreign bodies in the lumen of the appendix. Great stress was placed on the importance of a thorough search for foreign bodies. The authors likewise recommended that during the incipient stage saline cathartics be given "so that a plastic peritonitis will be formed." They assumed that peritonitis was almost inevitable.

The McBurney incision was recommended by Weller Van Hook[31] in a publication in 1897. He felt that early surgical treatment was to be performed by those who were competent. He suggested packing away contaminated areas from the general peritoneal cavity and routinely inverted the appendiceal stump. Van Hook had definite ideas about interference with areas of contamination and he stated: "What is the main anatomic object to be accomplished by operation when adhesions have formed? You will agree that it is to relieve by cut and drainage the tension in the abscess cavity—to make a safety valve. When this has been properly done our chief excuse for interference is exhausted. Further work in the abdomen is dangerous."

By 1902, 31 pages were devoted to appendicitis in the textbook by Nicholas Senn.[28] Even though the etiology of appendicitis was accurately postulated and the pathology described, a differential diagnosis of typhlitis was discussed at length. Dr. Senn still believed that the medical treatment of the disease was of value and recommended the use of 1 tablespoon of castor oil every 3 hours if the patient was constipated; he was emphatic in stating that laxatives were to be avoided if perforation or gangrene could be diagnosed. No clear-cut policy was established for the surgical treatment of appendicitis, and early intervention was not recommended unless the initial attack was "severe."

In 1896, John B. Deaver[8] published "A Treatise on Appendicitis," a work of 168 pages devoted entirely to this subject. He was concerned chiefly with typhoid fever and especially typhoid perforation in the differential diagnosis. He said "remove the appendix as soon as the diagnosis has been made" but went on to describe the "medical treatment"; he said, however, "I believe that laxatives should be administered in the beginning of every attack of appendicitis," but urged operation before pus formed. The third edition of this book,[9] published in 1905, contained 492 pages. Deaver was not so emphatic about the use of cathartics at the time of this edition "unless there is a history of indigestible food." He also recommended the nonoperative treatment for some cases of spreading peritonitis. This edition

Fig. 4. A. J. Ochsner of Chicago in 1902 outlined a conservative approach in treatment of appendiceal peritonitis.

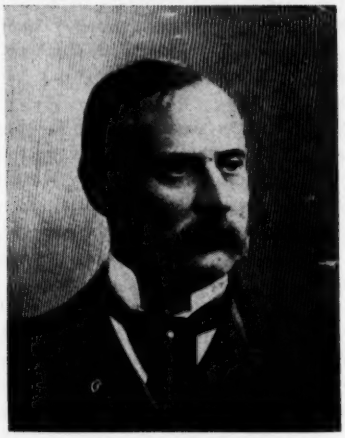

Fig. 5. Sir Frederick Treves reflected the British hesitancy to treat acute appendicitis with surgery. He drained the appendiceal abscess of King Edward VII in 1902.

contains a lengthy discussion of all references to the anatomy, function, and pathology of the appendix in the medical literature of the world to that date. By 1889 there were 2,500 articles or books written on appendicitis.[10]

The Ochsner treatment of appendiceal peritonitis was outlined by A. J. Ochsner[25] of Chicago in his book "A Handbook of Appendicitis" published in 1902. Ochsner realized that the surgical mortality in the face of an advancing peritonitis was staggering. He felt that "non operative treatment" should be used in these cases and in those where a properly trained surgeon and proper equipment was not available. He urged absolutely no food by mouth and the thorough washing out of the stomach through a tube, and this conservative method of treatment continues to bear his name to this day.

The surgical treatment of acute appendicitis was not so well recognized in England as it was in this country. Sir Frederick Treves[30] in the Cavandish Lecture in 1902 stated that "operation during an acute attack of appendicitis is attended with great risk of life." He would not concede the urgency of surgery unless there was "a suspicion of pus" and thought that surgery was best performed during a quiescent period. During that same year, Treves drained the appendiceal abscess of King Edward VII, and the eyes of the entire world focused on this new American disease. The first appendectomy was not performed in Australia until 1893.[24] By 1912, the British surgeon Burgess[2] was able to report "an analysis of 500 consecutive operations for acute appendicitis" and conclude that the lowest mortality rate was obtained when surgery was initiated during the first 48 hours of the process.

INTRODUCTION TO ABDOMINAL SURGERY

Certainly, the recognition of appendicitis as a distinct pathological and clinical entity was a tremendous step forward in modern surgery, and the realization that the disease could be corrected early in its acute phase by laparotomy opened up an entirely new field to the surgeon. "The large number of cases of appendicitis and the knowledge of the new aseptic way of invading the peritoneal cavity formed the foundation of abdominal surgery."[17] It is true that elective surgical procedures within the peritoneal cavity had been done previously but nowhere with any degree of success or assurance, and it was not until the surgical treatment of appendicitis was postulated and the pathology and symptomatology outlined by Reginald Fitz that the modern surgeon began to enter the abdomen with courage. The development of abdominal surgery was rapid in America, and soon other areas once considered beyond the reach of the surgeon's knife were invaded. The surgical treatment of appendicitis truly lighted the way for modern surgery.

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Some Phrenotropic Drugs

Clinical Applicability Based on Chemical Groupings

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Galveston, Texas

PHYSICIANS are being flooded with literature from the detail houses about the many drugs, particularly tranquilizers, used in the treatment of mental and emotional disorders. This only tends to produce bewilderment since the accompanying brochures usually indicate that each drug seems to be of value in nearly all disorders. The classification

TABLE 1.—*Classification of Some Phrenotropic Drugs.*

Registered Name (Chemical)	Pharmaceutical Firm	Daily Dosage (mg. unless noted)
A. TRANQUILIZERS		
I. *Diphenyl Methane Derivatives:*		
Frenquel (Azacyclonol)	Merrell	200-400
Suavital (Benactyzine)	Merck	3-9
Atarax (Hydroxyzine)	Roerig	50-100
Vistaril (Hydroxyzine)	Pfizer	50-100
II. *Propanediol Dicarbamate* (substituted propanediols):		
Equanil (Meprobamate)	Wyeth	800-3,200
Miltown (Meprobamate)	Wallace	
Ultran (Phenaglycodol)	Lilly	900-1,200
Deprol [Miltown 400 mg., Suavital 1 mg.]	Wallace	4-8 tablets
Prozine [Equanil 200 mg., Promazine 25 mg.]	Wyeth	4-8 capsules
III. *Psychosedatives with Muscle Relaxants:*		
Trancopal (Chlormezanone)	Winthrop	300-600
Suvren (Captodiamine)	Ayerst	100-400
Tolserol (Mephenesin)	Squibb	4-6 Gm.
Flexin (Zoxazolamine)	McNeil	250-750
Paraflex (Chlorzoxazone)	McNeil	750-2,000
IV. *Rauwolfia:*		
Raudixin (Crude Drug)	Squibb	50-100
Rauwiloid (Purified Extract)	Riker	2-4
Serpasil (Reserpine)	Ciba & Others	1-2
Harmonyl (Deserpidine)	Abbott	2-3
Moderil (Rescinnamine)	Pfizer	0.5-1
V. *Phenothiazine Derivatives* (neuroleptics):		
Phenergan (Promethazine)	Wyeth	100-200
Tentone (Methoxypromazine Maleate)	Lederle	30-500
Sparine (Promazine)	Wyeth	100-800
Pacatal (Mepazine)	Warner-Chilcott	100-500
Thorazine (Chlorpromazine)	Smith, Kline & French	100-3,000
Vesprin (Triflupromazine)	Squibb	100-200
Compazine (Procloperazine)	Smith, Kline & French	20-40
Dartal (Thiopropazate)	Searle	20-40
Trilafon (Perphenazine)	Schering	16-32
Stelazine (Trifluoperazine)	Smith, Kline & French	3-40
Prolixine [Vespazine] (Trifluomeperazine)	Squibb	2-60
Mellaril (Thioridazine)	Sandoz	100-400
B. DEPRESSANTS (SEDATIVES AND HYPNOTICS)		
I. *Barbiturates:*		
Phenobarbital		64-200
Mebaral (Mephobarbital)	Winthrop	90-400
II. *Nonbarbiturates and Others* (chloral hydrate, bromides, paraldehyde, alcohol):		
Doriden (Glutethimide)	Ciba	500-1,000
Placidyl (Ethchlorvynol)	Abbott	500-1,000
Noludar (Methyprylon)	Roche	100-400
Dormison (Methylparafynol)	Schering	500-1,000
Quiactin (Oxanamide Glycidamide)	Merrell	800-1,000
Valmid (Ethinamate)	Lilly	500 prn.
Oblivon (Methylpentynol)		
C. STIMULANTS (ANTIDEPRESSANTS)		
I. *Monoamine Oxidase Inhibitors* (psychic energizers):		
Marsilid (Iproniazid)	Roche	50-200
Catron (B-Phenylisopropyl-hydrazine)	Lakeside	6-12
Nardil (Phenelzine Dihydrogen Sulfate)	Warner-Chilcott	15-60
Niamid (Nialamide)	Pfizer	50-200
RO 5-0831-1 (Benzylmethylisoxazolyl-carbonylhydrazine)	Roche	30-60
II. *Central Stimulants:*		
Ritalin (Methyl-phenidylacetate Hydrochloride)	Ciba	15-40
Meratran (Alpha [2 Piperidyl] Benzhydrol Hydrochloride)	Merrell	2-5
Deaner (Deanol)	Riker	25-75
Disipal (Orphenadrine)	Riker	50-100
Amphetamine Derivatives		
III. *Thymoleptics* (true antidepressants):		
Tofranil (Imipramine Hydrochloride)	Geigy	25-200

Dr. Hamilton Ford is professor of neurology and psychiatry at the University of Texas Medical Branch.

which follows and which is elaborated upon in table 1 is for the purpose of bringing some order out of the chaos.

The term phrenotropic has been selected as it covers the many chemical families of drugs which have an affinity for the mind.

A. TRANQUILIZERS AND ATARACTICS (alleviate anxiety, agitation, and abnormal mentation and behavior without dulling mental acuity).
   I. *Diphenyl Methane Derivatives* (reduce anxiety or restore peace of mind).
   II. *Propanediol Dicarbamate* (central relaxant).
   III. *Psychosedatives* (with muscle relaxants).
   IV. *Rauwolfia* (reduces hypermotility, abnormal initiative, and increased affective tension).
   V. *Phenothiazine Derivatives* (neuroleptic manifested by sedative action without narcotic effect; specific effects on excitement, restlessness, and aggressiveness, plus vegetative and extrapyramidal changes).

B. DEPRESSANTS (sedative in small doses; hypnotic in large doses).
   I. *Barbiturates* (cortical depressant).
   II. *Nonbarbiturates and Others* (cortical depressant).

C. STIMULANTS (antidepressants).
   I. *Monoamine Oxidase Inhibitors* (psychic energizers).
   II. *Central Stimulants.*
   III. *Thymoleptics* (true antidepressants).

♦ Dr. Ford, John Sealy Hospital, Galveston.

Hypnosis Cures Hiccups In Heart Attack Victims

A single hypnotic suggestion successfully cured an 8 day case of hiccups in a man recovering from a heart attack, two Philadelphia doctors, Drs. Gordon Bendersky and Martin Baren, reported in the September *A.M.A. Archives of Internal Medicine.*

A serious complication of myocardial infarction, hiccups produce extreme exhaustion in the patient if they are prolonged, said the doctors. They cited the case of a 55 year old man who developed hiccups 22 days after he had suffered a heart attack. After 8 days of almost constant hiccupping, during which all the standard treatment methods were tried, the patient was given one hypnotic suggestion that the hiccups would disappear, said the doctors, and he was rid of the hiccups.

Histopathologic Similarities In Skin Diseases

JOHN M. KNOX, M.D. and R. KINGSLEY McHENRY, M.D.

Houston, Texas

ALTHOUGH THERE are hundreds of diseases that affect man, the human body can react in only a limited number of ways. This is particularly true for any one organ or system. The skin, because of its external position, size, and numerous functions, may manifest a rather imposing list of disease states. It should be emphasized that in spite of the fact that these diseases are different and can be diagnosed with accuracy, there are inevitable duplications of certain features of various diseases. These similarities may be in respect to symptoms, type of primary skin lesion, shape or configuration of the lesions, chemical changes, distribution of the disease process, laboratory findings, or other aspects.

There are definite histopathologic similarities in otherwise unrelated and separable dermatological diseases, and this presentation will point out several examples. Specific diseases will be chosen to demonstrate where etiology, clinical appearance, prognosis, response to drugs, and chemical changes are different, in spite of similar histopathologic alterations.

SIMILAR YET DIFFERENT

Etiology.—The histopathologic pictures may be identical in sarcoidosis, in certain foreign body granulomas as beryllium granuloma or deodorant granuloma, and in such infectious diseases as tuberculosis and leprosy. In each of these conditions the etiology is different, yet the histopathologic findings may be indistinguishable. Under these circumstances accurate diagnosis depends upon differences in the history, physical findings, and laboratory data.

Clinical Appearance.—The experienced physician has little difficulty in differentiating between granuloma annulare and necrobiosis lipoidica diabeticorum because the typical lesions do not resemble each other in appearance. However the histopathologic findings in the usual hematoxylin and eosin preparation may be strikingly similar. When studying the dermis, the finding of necrobiosis with palisading histiocytes

surrounding the necrobiotic areas is almost pathognomonic of one of these two diseases. How two diseases can be so similar and unique histologically and yet quite different in appearance, distribution, clinical course, and so forth is a mystery.

Prognosis.—The prognosis in pemphigus vulgaris and chronic familial benign pemphigus of Hailey and Hailey is as opposite as black and white. Prior to the advent of steroid therapy, pemphigus vulgaris was nearly always fatal, whereas Hailey and Hailey's disease is never fatal. Nevertheless, suprabasalar acantholysis with the formation of vesicles and bullae characterizes both disease processes. They can present an identical histopathologic picture, although the lesions are usually larger in pemphigus and corps ronds and grains are often found in Hailey and Hailey's disease.

Response to Drugs.—Subepidermal bullae formation is the most important pathologic feature in erythema multiforme, dermatitis herpetiformis, and epidermolysis bullosa. Dermatitis herpetiformis responds to sulfapyridine and erythema multiforme responds to corticosteroid therapy; epidermolysis bullosa is rarely benefited by any therapeutic approach. It is not difficult to explain why erythema multiforme responds to adequate corticosteroid administration; however, one can only speculate upon the action of sulfapyridine in dermatitis herpetiformis. With all three diseases manifesting separation of the epidermis from the dermis, it is interesting that therapeutic response is unrelated. Three separate mechanisms must be involved.

Chemical Changes.—Only chemical tests can be relied upon to differentiate amyloid from colloid in the skin. In both amyloidosis and colloid milium, their respective deposits are in the pars papillaris of the cutis, and both materials are somewhat amorphous and stain eosinophilically with hematoxylin and eosin stain. Therefore different chemical substances may be deposited in the skin to produce a similar histopathologic picture. Special stains must be utilized, such as van Gieson, which stains amyloid pink and colloid yellow, and methyl violet, which stains amyloid but not colloid.

Nomenclature.—It is not unusual for different clinical entities or syndromes to present the same histopathologic findings. In many such instances the syndromes probably represent variations in appearance, distribution, or the clinical course of the same disease process. This is probably the case in lichen sclerosus et atrophicus, balanitis xerotica obliterans, kraurosis vulvae, and Csillag's disease, for it is likely that they are only variations in one disease process and should be classified under the general category of lichen sclerosus et atrophicus.

COMMENT

These examples of histopathologic similarities are presented not as much to enlighten as to stimulate interest in these phenomena. The biochemist, physiologist, histochemist, microbiologist, and other researchers are continuing to supply basic knowledge and information that some day will enable the clinician to understand not only these phenomena but unexplained aspects of other diseases.

Although the intriguing similarities named were selected to illustrate specific points, there are other examples that could have been employed. Noteworthy among the omissions are similarities found in the following four categories:

1. Insect bite versus lymphoma versus benign lymphocytic infiltrates of the skin.
2. Erythema nodosum versus nodular vasculitis versus erythema induratum.
3. Keratodermia blennorrhagicum versus pustular psoriasis versus pustular bacterid versus acrodermatitis continua.

Because of the occurrence of these and other histopathologic similarities, occasions arise in which the pathologist can offer only a "compatible with" diagnosis. Unless the attending physician is aware of the pathologist's problems in differential diagnosis, he will be handicapped by failure to place the pathologist's interpretation in its proper perspective. Also, a clinician should appreciate the histopathologist's desire for pertinent data obtained from the history, physical examination, and laboratory findings. The wise pathologist always considers the clinical findings before making a diagnosis. It should be emphasized that in many instances the clinical and pathologic findings must be correlated before an accurate diagnosis can be established by either the clinician or the pathologist. Pathologists who make diagnoses without regard to the clinical findings are as certain to err as is the clinician who does not know how to employ laboratory aids in diagnosis.

Dr. John M. Knox and his coauthor, from the Department of Dermatology at Baylor University College of Medicine, presented the paper for the Texas Dermatological Society in San Antonio, April 20, 1959.

Histopathologic similarities exist in otherwise unrelated and separable dermatologic diseases. Examples demonstrate different etiology, clinical appearance, prognosis, response to drugs, and chemical changes in spite of similar histopathologic alterations. Often clinical and pathologic findings must be correlated for accurate diagnosis.

In dermatology as in other fields of medicine the patient is best served by the physician who is able to take a careful history, perform a thorough physical examination, obtain appropriate laboratory studies, and then correlate all of the findings into an understanding of the patient's disease process. In this manner a correct diagnosis and logical plan of treatment can be established.

SUMMARY

There are definite histopathologic similarities in otherwise unrelated and separable dermatologic diseases. Specific examples demonstrate where etiology, clinical appearance, prognosis, response to drugs, and chemical changes are different in spite of similar histopathologic alterations. In many instances the clinical and pathologic findings must be correlated before an accurate diagnosis can be established by either the clinician or the pathologist.

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Drs. Knox and McHenry, Department of Dermatology, Baylor University College of Medicine, Houston.

Limit to Veterans Medical Care Urged

In hopes of getting the support of all state medical societies, the Medical and Chirurgical Faculty of the State of Maryland, through its House of Delegates, proposes a plan of action to limit federal medical care of veterans to service-connected disabilities.

The Association of American Physicians and Surgeons also is advocating that the Veterans Administration Act be revised to provide for government paid medical and hospital care of veterans to those with disabilities linked with the service only. An effort will soon be made to receive a congressional hearing before the House Veterans Affairs Committee.

Inasmuch as 85 per cent or more of the cases cared for in VA hospitals are of non-service origin, the proposed action would save the taxpayers nearly a billion dollars per year. The AAPS action-plan would have veterans cared for by the Armed Forces hospitals or by local civilian hospitals on a hometown care basis. U. S. Public Health Service hospitals might also be used to a limited extent. It suggests eventually turning over VA hospital facilities to the states, possibly as hospitals for tuberculosis and neuropsychiatric patients.

Staphylococcus Wound Infection

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San Antonio, Texas

THE PROBLEM of intrahospital infection is not new, but it is assuming increasing importance the world over. The principal offending organism is the hemolytic, coagulase positive, Staphylococcus aureus. Since the advent of antibiotics in 1938, the characteristics of the many strains of Staphylococcus have changed. Some strains have become resistant to every available antibiotic and chemotherapeutic agent, and there is reason to believe that the same will hold true for any agent to be developed in the future. The Staphylococcus is capable of producing the most minor, the most devastating, the most resistant, and the greatest number of infections in our hospitals today.

The control of intrahospital infection centers around the control of cross infection among the patient, hospital personnel, and environment. It has long been known that the Staphylococcus often becomes air borne from septic wounds and contaminated dressings and that one of the major means of distribution is the upper respiratory tract of hospital personnel. Sources of the Staphylococcus and pathways of wound infection are shown in figure 1. There is strong clinical evidence that strains which are dispersed from active infections are more virulent than those of the same "phage" type carried in the nasopharynx of healthy carriers. The control of intrahospital infection is far from being effective, and the available means of combating the

Dr. Richard J. Harris, chief resident in surgery at Robert B. Green Memorial Hospital, presented this paper at the quarterly staff conference of the hospital June 10, 1958, and before the Alamo Area Hospital Council of the Texas Hospital Association September 27, 1958.

In a study of postoperative wound infections advanced age, increased operating time, and decreased systemic resistance predisposed the patient to infection. Control measures including discontinuance of routine antibiotic prophylaxis, strict asepsis and atraumatic operative technique, isolation of patients with wound infections, and routine inspection and cleaning of air filters and ventilators cut the incidence of infection appreciably.

majority of staphylococcal infections are only slightly more efficient than in the preantibiotic era.

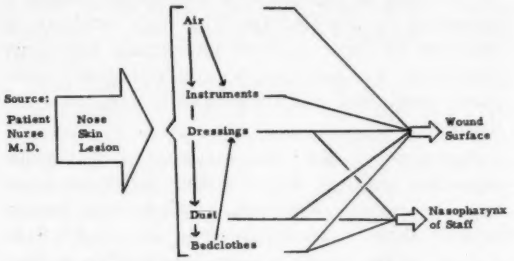

Fig. 1. Sources of Staphylococcus and pathways of wound infection. (Adapted from Rountree, P.M.: Cross-Infection of Surgical Wounds, M. J. Australia 2:766-769 [Dec. 8] 1951, who in turn adapted from Mitman, M.: Aerial Infection, Brit. M. J. 1:71-74 [Jan. 20] 1945 and Harries, D. H. R., and Mitman, M.: Clinical Practice in Infectious Diseases, ed. 2, Edinburgh, 1944, p. 522.)

CURRENT STUDY

The Robert B. Green Memorial Hospital is a 300 bed charity institution with an average of 792 major and 372 minor general surgical procedures per year. Wound infections presented no particular problem until November, 1957, when the postoperative wound infection rate became so great that all elective procedures were canceled for a period of 1 week. In March, 1958, a similar situation presented itself, and again all elective procedures were canceled. An intensive study of wound infections was undertaken and many errors in procedure and technique were discovered.

The charts of all 912 patients admitted to the General Surgery Service from July, 1957, through March, 1958, were reviewed. A total of 110 postoperative wound infections were encountered. These were classified into three groups, after Howe:[2]

Group I—"Clean" surgical procedures. No evident contamination occurred during operation and healing by primary intention was expected. Example: sympathectomy, mastectomy, thyroidectomy.

Group II—Operative procedures in which there was potential or actual contamination, but in which the wounds were expected to heal by primary intention. Example: cholecystectomy, intestinal resection, appendectomy.

Group III—Operative procedures in which infection was obligatory. Example: incision and drainage of abscesses.

Only those patients in categories I and II were considered for purposes of this study and together were considered as "clean" operative procedures in that wound healing is normally by first intention. Sixty-eight infections fell into this group. (The remaining 42 cases were in group III and were not considered.)

WOUND INFECTIONS

Infection Rate.—The over-all wound infection rate for "clean" procedures over the 9 month period from July, 1957, through March, 1958, was 7.5 per cent (fig. 2). This varied from 2.7 per cent in

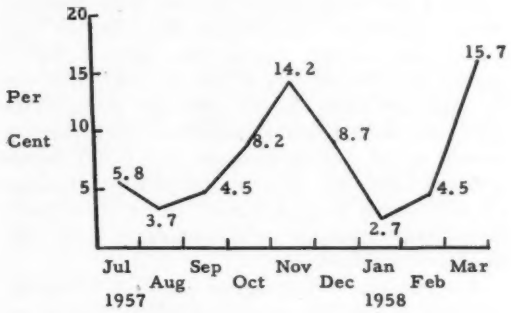

Fig. 2. Incidence of Staphylococcus wound infection during the period July, 1957-March, 1958.

January, 1958, to 15.7 per cent in March, 1958. A study by Pulaski and Bowers[3] has shown that the exact incidence of postoperative wound infections is difficult to ascertain; however, their figures may serve as points of reference (table 1).

TABLE 1.—*Incidence of Postoperative Wound Infection Reported by Pulaski and Bowers.*[3]

Type of traumatic wounds	Infection Rate (%)
Simple and complex wounds of extremities	5-25
Penetrating abdominal wounds	10-60
Elective surgical procedures	
Contaminated fields	8-14
"Clean" fields	1-5

Adapted from Pulaski, E. J., and Bowers, W. F.: Antibiotic Prophylaxis; Possibilities, Limitations and Hazards, Surg. Clin. N. Am. (Oct.) 1957, pp. 1459-1471.

The incidence of "clean" wound infections in the preantibiotic era was approximately 2 per cent, and the increasing incidence is probably real rather than relative. This may be due, in part, to the indiscriminate use of antibiotics and the consequent development of resistant strains of bacteria, but more likely it is due to the failure to observe aseptic surgical technique and to adhere to sound surgical principles.

Approximately 20 per cent of the postoperative wound infections were discovered at the first clinic visit after the patient left the hospital. This delay in discovery of wound infection prevails in private hospitals as well, especially since private patients are discharged earlier. If a patient is found to have a wound infection at the first postoperative visit to the physician's office, and if this infection is not reported to the proper authorities, it follows that the actual incidence of infection for that hospital will be higher than the reported or assumed incidence.

It is of particular interest that only 3 postoperative wound infections occurred on the Obstetric and Gynecologic Service during this same 9 month period, an infection rate of 0.4 per cent. This can be explained partly by the generally younger age group and better physical condition of these patients, as well as the lack of traumatic injury and shorter operating time per case, as compared to patients on the General Surgery Service. Other factors such as minimal exposure to contaminated cases also must be considered.

Age Incidence.—The highest incidence of wound infection was in the age group 60-70. This is in general agreement with Brown's opinion that age is the most important factor in individual susceptibility, the newborn and aged being the most vulnerable.[4] Patients in the geriatric age group usually have concomitant diseases, many are debilitated, and most have lost much of their natural resistance to infection, especially to the Staphylococcus.

Operating Time.—Infection rate varied directly as the operating time with the highest incidence in patients who had undergone procedures lasting 2 hours or longer. Prior to the development of better anesthetic methods, speed was considered a prerequisite of good operative technique. It was unusual for an operative procedure to last more than 2 hours, especially in the geriatric patient. This time factor is of less importance today, and it follows that the longer the operative site is exposed to the air the greater the chance for contamination.

Operative Risk.—Classification of patients as to operative risk was based on the Standard Anesthesia Classification, as follows:

1. An individual with no systemic organic disease or with localized disease which causes no systemic symptoms.
2. An individual with moderate systemic disturbance.
3. An individual with severe systemic disturbance.
4. An individual suffering from systemic disorders which are an imminent threat to life.
5. All patients operated upon for emergency conditions who would otherwise be in classes 1 or 2.
6. All patients operated upon for emergency conditions who would otherwise be in classes 3 or 4.
7. Moribund or comatose patients.

The contention that wound infections are more apt to occur in patients with concomitant disease is supported by our findings. The high incidence of infection in those patients undergoing emergency procedures is significant because this group comprises those with definitely decreased systemic resistance.

Bacteriology.—The vast majority of pathogenic organisms cultured from wound infections were coagulase positive, hemolytic, Staphylococcus aureus, most of them bacteriophage type 44A/52AB/81A.

Early in the course of sensitivity studies in July, 1957, most of the Staphylococci were found to be sensitive to the tetracyclines, chloramphenicol, and erythromycin. Those strains acquired outside the hospital environment were in many instances sensitive also to penicillin and streptomycin. There appeared to be a general resistance to the sulfonamide preparations. As the study progressed, it was found that more and more cultures were resistant to all of the commonly employed antibiotics, and by March, 1958, the majority were sensitive only to novobiocin and bacitracin. These drugs were not available for general use from the hospital pharmacy, but had they been, there is every reason to believe that resistance to these drugs would have developed quickly.

TABLE 2.—*Organisms Recovered from Wounds Postoperatively.*

Organism	Number of Wounds
Staph. aureus	46
Staph. albus	9
Pseudomonas	6
Coliform	5
Proteus sp.	3
Alpha Strep.	1
Beta Strep.	1
Anaerobic Strep.	1
Paracolon	1
Total	73

The organisms recovered are listed in table 2. In this table 73 cultures are reported for the 68 wound infections. This is due to the fact that more than one organism was present in significant number in 3 cases and that the bacterial flora completely changed in 2 other wounds during the course of treatment. With this possibility in mind, cultures are now taken from every wound infection weekly, in order to determine the predominant bacteria. It is interesting that whereas Streptococci were responsible for a large number of wound infections in the preantibiotic era, they were incriminated in only 3 instances in this series.

Morbidity and Mortality.—The average hospitali-

zation period of patients with wound infections was 24.5 days as compared to an average hospital stay of all patients of 7 days. This represents added stress to the patient from a financial, physical, and mental standpoint, and a loss of available bed space to the hospital.

The most severe complication of wound infection was evisceration. This occurred in 4 instances, 2 on the sixth, 1 on the eighth, and another on the thirteenth postoperative day. All were treated by immediate closure utilizing through-and-through wire sutures, and recovery was uneventful in each case. No evidence is yet available, but the incidence of incisional hernia in those patients with abdominal wound infections in all probability will be high.

The majority of wounds were found to be infected on the fifth to sixth postoperative day. The earliest was discovered on the second, and the most delayed on the thirty-first day following operation.

Four patients with wound infections died. These were all debilitated geriatric patients, and death was due to staphylococcal pneumonia, proven at necropsy. The same strains of Staphylococci involved in the pneumonic process were cultured from the wounds of all 4 patients prior to death.

Treatment.—Suspicion of infection was aroused by fever, local erythema, warmth, induration, and tenderness. When these classic findings were present, all skin sutures were removed, the subcutaneous tissue was opened widely, and a specimen was taken for culture and sensitivity. The wound was irrigated with hydrogen peroxide, scrubbed with gauze sponges, and covered with an occlusive dressing. This procedure was repeated twice daily thereafter. This represented a compromise with the ideal therapy of leaving the wound exposed, but it was thought that exposure would increase the opportunity for cross infection. Local antibiotics were not used, and systemic antibiotic therapy was used only when the measures described failed to control the infection. In approximately 50 per cent of infected wounds, secondary closure with wire sutures was employed, and in the remainder, granulation was allowed to proceed until epithelization occurred. In several cases secondary closure was performed prematurely, with resulting infection of the needle tract, necessitating removal of sutures and causing a prolongation of morbidity.

CONTROL MEASURES

Many new techniques in ward procedure and general patient care have been instituted. A program has been developed to combat cross infection and is constantly undergoing change as better methods are introduced. The following constitute the most significant features in our approach to the problem:

1. All patients admitted to the hospital with established infection and those patients developing infection while hospitalized are strictly isolated.

2. Routine antibiotic prophylaxis has been abolished, and culture and sensitivity studies are performed on the bacteria from every wound infection.

3. Dressing carts have been eliminated as all dressing carts and lifting forceps were found to harbor Staphylococci. Individual "dressing packs" have been substituted containing sponges, towels, and a large piece of brown paper for the disposal of contaminated material. The instruments necessary for the removal of sutures are packed separately in a large Pyrex tube.

4. Personnel are required to wear gown, mask, and gloves when dressing infected wounds. Gloves are required for the changing of all dressings on the surgical wards.

5. The use of double masks and complete change of scrub suit, cap, and masks between operative procedures is now employed. Canvas boots are worn over special shoes which are to be worn only in the operating suite.

6. A 10 minute scrub is required before each surgical procedure regardless of the number of previous scrubs for that day.

7. Extraneous traffic on the surgical wards and in the operating suite has been curtailed. Visitors are restricted to 2 per patient, and none are allowed to enter the recovery room or isolation ward.

8. A clinic for the outpatient care of infected wounds has been established. This prevents mingling of infected patients with those who will enter the hospital for operative procedures and minimizes opportunity for cross infection to occur.

9. Emphasis is placed on a return to the established principles of effective skin preparation, atraumatic surgical technique, strict hemostasis, avoidance of wet drapes, closure without tension, and avoidance of mass ligature.

10. The Housekeeping Department has instituted several reform measures, the most important being the use of wet mops in scrubbing floors, complete cleansing of each bed following discharge of the patient, frequent inspection and cleaning of ventilators and change of air filters, and a training program for those personnel assigned to the isolation ward.

RESULTS

Following institution and enforcement of the control measures just outlined, the postoperative wound infection rate decreased to an average of 3 per cent

over the 7 month period from April, 1958, through October, 1958.

While the possibility exists that this decrease is due to a remission inherent in the life cycle of staphylococcal infections, it appears more likely the decline is due to vigilance and attention to rigid aseptic technique. There has been no case of death or evisceration on the General Surgery Service directly attributable to the Staphylococcus since March, 1958.

SUMMARY

Sixty-eight postoperative wound infections occurred in clean operative fields on the General Surgery Service in the 9 month period from July, 1957, through March, 1958, an incidence of 7.5 per cent. Factors which predispose the patient to wound infection are advanced age, increase in length of the operative procedure, and decreased systemic resistance. The majority of wound infections became apparent on the fifth to sixth postoperative day, and treatment consisted of removal of skin sutures and daily debridement. Secondary closure was successful in approximately 50 per cent of the cases reviewed. Four deaths due to staphylococcal pneumonia in patients with staphylococcal wound infections were encountered. The most serious complication of wound infection was evisceration, which occurred in 4 instances. Important control measures instituted include the discontinuance of routine antibiotic prophylaxis; strict asepsis and atraumatic operative technique; isolation of all patients with wound infections; and the routine inspection and cleaning of air filters and ventilators.

Following institution and enforcement of the various control measures, the postoperative wound infection rate fell to a monthly average of 3 per cent and has remained at that level.

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Benign Gastric Neoplasms

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TO FAMILIARIZE ourselves with the clinical picture presented by patients with benign gastric neoplasms, to determine what laboratory aids are useful in the diagnosis of these tumors, to study the results of surgical treatment, and to evaluate all data in an effort to guide our therapeutic efforts in the future, we have reviewed the literature and have studied the records of 19 of our own proven cases. We also found 6 cases which we considered originally to have been benign, but which at the time of surgery showed malignant change.

The frequency with which benign neoplasms of the stomach are discovered depends to a large extent upon the type of examination to which the stomach has been subjected. Rinierts[11] reported on two series (of 100 consecutive autopsies each) in which he found one or more leiomyomas in 16 per cent of the stomachs examined. These lesions varied in size from 0.1 to 0.9 cm. in diameter. Eusterman and Senty[3] on the other hand, studied clinical records and found that of 2,168 gastric tumors which were removed surgically, only 1.3 per cent were benign. Dudley and others[1] reported that examination of the records of 76,077 adult medical and surgical patients revealed that 456 patients had been operated upon for gastric tumor. Only 1.3 per cent of the tumors removed at

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Benign tumors of the stomach should be kept in mind as a possible cause of upper gastrointestinal complaints. Radiologic examination and/or gastroscopy are the most reliable methods of diagnosis. These tumors should be removed surgically—the type of surgical procedure depending on the condition found on the operating table.

surgery were benign. This percentage agrees exactly with that of Eusterman and Senty.

Although symptomatic benign neoplasms of the stomach are apparently rather uncommon, the possibility of the existence of such lesions must be considered in every patient who presents himself with a history of upper gastrointestinal complaints. Once the possibility of a benign neoplasm of the stomach is entertained, appropriate diagnostic procedures can be instituted. If such a lesion is found to be present, the clinician then must decide whether the patient's symptoms are caused by the tumor. Although the decision surgically to remove a symptomatic tumor is usually simple, it is not always easy to decide upon the type of surgical procedure best suited to each particular case. In some instances local excision will be the operation of choice, while in others subtotal or total gastric resection may be necessary. Another important and perplexing problem which often arises is that which concerns the type of treatment which should be administered to the patient who apparently has no symptoms due to the presence of the tumor. The question arises as to whether these patients should be reassured and observed or should have the tumor surgically removed.

CLINICAL EVALUATION

A series of 19 cases is certainly not large enough to be of statistical significance, but we found that our clinical data agreed fairly well with those of others.[1, 6, 8] It was of interest to find that slightly more than half of the patients were women, there being a total of 11 women and 8 men in the entire group. This agrees closely with the study of Edwards and Brown,[2] who found that of the 32 patients they reported, 17 were women and 15 were men. Our youngest patient was 18 and the oldest was 76 years of age. Eighty-four per cent of the patients were 50 years of age or older.

Table 1 summarizes the symptoms noted by these patients. Indigestion, vomiting with or without blood, tarry stools, and weight loss and/or weakness were the most common complaints. It is of interest to note that pain was not a prominent symptom. The duration of symptoms varied from 3 days to 20 years, 63 per cent having had symptoms for 6 months or more. Seven patients reported to the clinic because of an acute episode of hematemesis and/or blood in the stool.

TABLE 1.—*Symptoms of 19 Patients with Benign Gastric Neoplasms.*

Symptoms	No.
Indigestion	12
Vomiting with or without blood	8
Weight loss and/or weakness	5
Tarry stools	5
Pain	2
Diarrhea	1

While attempting to evaluate the significance of the symptoms of this group of patients, we were impressed by the frequency with which the patient complained of vague, ill-defined upper abdominal distress or indigestion. Out of the confusing mass of nondiagnostic symptoms one finds two complaints which are noted fairly frequently, these being (1) sudden hematemesis or tarry stool, and (2) periodic vomiting which often had been present for some months.

The importance of these complaints has been discussed previously in the literature,[4] of course, but it is perhaps of value to reemphasize the fact that these are the two complaints which are most significant. When one considers that ulceration, hemorrhage, and prolapse of a benign neoplasm into the pyloric canal does occur, the explanation of these two complaints appears logical.

The symptoms of the 6 patients who had benign tumors of the stomach which showed malignant change did not differ appreciably in type or percentages from those who had benign tumors which did not show malignant change.

PHYSICAL FINDINGS

Table 2 gives a summary of the physical findings in this group of patients. Of particular interest is the fact that slightly more than half of the patients had no demonstrable physical abnormalities. That 21 per cent of the patients were noted to be pale is to be expected, since 8 patients had a history of having had, at one time or another, signs of gastrointestinal bleeding. Although on 3 occasions vague epigastric mass was described by the examiner, undoubtedly voluntary muscular rigidity was the actual cause of this finding, as none of the tumors were large enough to be palpable.

TABLE 2.—*Physical Findings in 19 Patients with Benign Gastric Tumors.*

Physical Findings	No.
No abnormal findings	10
Pallor	5
Questionable mass	3
Appearance or chronic illness	1

The 6 patients whose benign tumors showed malignant change had essentially the same physical findings as those whose tumors did not show malignant change.

CLINICAL LABORATORY STUDIES

Five of the patients whose tumors were benign were found to be anemic. Two of these patients had a stool examination for occult blood. One was positive and 1 was negative. Of the patients whose tumors showed malignant change, 3 were found to be anemic. Two of these patients had stool examination for occult blood, and 1 was positive and 1 was negative. Stool examination for occult blood is a simple test and should be of some value if properly performed.

Gastric analysis was done on 8 patients whose tumors were benign. Of these 7 showed low free and total hydrochloric acid, and 1 examination revealed hyperacidity. Blood was noted on gastric analysis in 1 patient.

Gastric analysis was performed on 4 of those patients whose tumors showed malignant change. Of these 3 showed low free and total hydrochloric acid and 1 examination revealed hyperacidity. Blood was not noted on any of these examinations.

When clinical laboratory findings are positive, the results of the examination may be of some aid in diagnosis, in that they center one's attention more forcefully on the upper gastrointestinal tract.

SPECIAL EXAMINATIONS

The two most important examinations in the diagnosis of these lesions are the radiologic and gastroscopic studies. Twenty-one of our entire series of 25 tumors were diagnosed by roentgen ray and the others at surgery. A few were seen on gastroscopic examination.

Careful roentgenoscopic and roentgenographic studies should reveal most of the benign neoplasms of the stomach which are producing symptoms. A. B. Moore[9] described the roentgen-ray findings many years ago, and his statements are certainly as true today as they were then. Briefly, a benign neoplasm of the stomach usually produces a filling defect on one of the gastric walls, the defect being well circumscribed. The gastric rugae are of course obliterated in the immediate region of the tumor, but adjacent rugal markings are normal in appearance. No disturbance in peristalsis is noted, unless, as Moore stated, the lesion is at or very near the pylorus. In a later article, Moore[10] noted that these tumors were more likely to be found in the lower two-thirds of the stomach. We found this to be true in our series.

We also noted (as did he) that some of the lesions were sessile and some pedunculated. Those which are pedunculated are more apt to prolapse into the pylorus. They are also sometimes more difficult to diagnose, as they can be manipulated within the stomach and may appear to the fluoroscopist to be food particles. Small sessile tumors may be confused with slightly enlarged rugal folds. We were able to demonstrate ulceration within the tumor in 2 of our series. The ulceration was centrally located and was rather superficial. Figure 1 is an example of a benign neoplasm of the antral region of the stomach with a small central ulceration.

We would like to reemphasize a finding which is discussed by Storch[12]; he describes a splitting of the column of medium around a tumor mass in the stomach wall. We have observed this phenomenon distinctly on 1 examination. In this instance the lesion was located in the antral region and is the one illustrated in figure 1.

Fig. 1. An example of a benign neoplasm of the antral region of the stomach with a small central ulceration.

All of the previously described roentgen-ray signs are of great value and usually point to the correct diagnosis. However, we agree with Lowman and others[7] that benign and malignant polypoid tumors of the stomach cannot always be differentiated by roentgen ray. All the lesions which are presented, including the 6 which showed malignant change, were diagnosed as probably being benign tumors of the stomach.

GASTROSCOPIC EXAMINATION

Although we use roentgenologic methods of examination to a much greater extent than we use gastroscopic methods, we are now expanding our gastroscopic program and undoubtedly more patients will be examined with the gastroscope in the future. We do believe that this method should be used in conjunction with roentgen-ray examination when indicated. There are certainly instances in which one or the other method is far superior, as well as instances in which neither is adequate.

TUMOR TYPE AND LOCATION

Nineteen of the entire group of 25 cases were found to have lesions in the antrum or midportion of the stomach. Three were located in the upper one-third of the stomach, and 3 were located in multiple areas.

In the 19 patients whose tumors were entirely benign, 11 were adenomas, 6 were leiomyomas, 1 was a neurofibroma, and 1 was a lipoma. Of the 6 patients whose tumors showed malignant change, 3 had lesions diagnosed as grade i adenocarcinomas and 2 had grade i leiomyosarcomas. One patient had an adenoma within which was found a tiny grade 3 adenocarcinoma. Microscopic section of this lesion is seen in figure 2. The only area of malignancy which could be found measured 75 microns in diameter. No other evidence of malignancy was noted. Three of the lesions were grade 1 adenocarcinomas and 2 were grade 1 leiomyosarcomas. We believe that the finding of malignancy within the benign tumor is strong presumptive evidence that the benign tumor had undergone malignant change. This is in agreement with the opinion of others.[2, 4, 5] The finding of such a high number of small tumors showing evidence of malignant change (that is 6 out of 25 cases) influences our treatment.

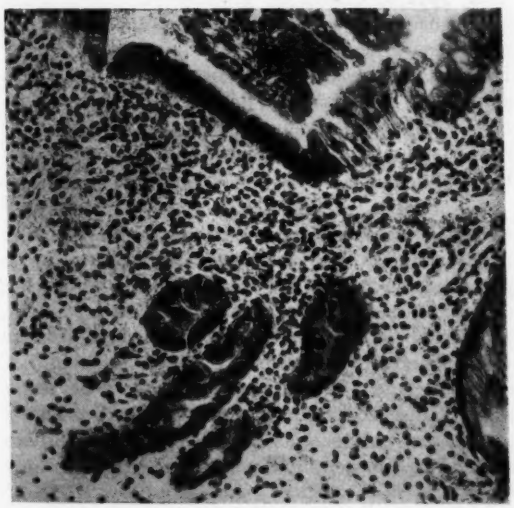

Fig. 2. A microscopic section of an adenoma within which was found a tiny grade 3 adenocarcinoma.

RESULTS OF SURGICAL REMOVAL

In general, if the patient is able to have a major surgical procedure performed, we think that these benign tumors should be removed. Of course, each case must be evaluated upon its own merits. The risk of malignant change and the evaluation of symptoms must be weighed against the morbidity and ever present possibility of mortality of any major surgical procedure. If no malignancy is found on frozen section pathological examination, simple excision of the tumor would seem to be the procedure of choice if this is possible. If malignancy is found, subtotal gastric resection should be considered strongly.

Of the 19 patients who had a benign tumor or tumors of the stomach, 15 were improved after surgery. Of the 6 patients with malignancy, 5 were improved following surgery.

CONCLUSIONS AND SUMMARY

Benign tumors of the stomach, while not common, should be kept in mind as a possible cause of upper gastrointestinal complaints. The patient with a benign tumor of the stomach may be of either sex, and is usually over 50 years of age. The chief complaint of patients with these lesions most often will be indigestion or vomiting. The most common physical finding will be pallor.

Radiologic examination and/or gastroscopy are the most reliable methods of diagnosis. Other laboratory findings such as anemia, occult blood in the stool, and achlorhydria or low free and total gastric acid are of some aid in diagnosis. Most of these tumors are found in the lower two-thirds of the stomach, and most commonly they are either adenomas or leiomyomas.

Malignant change is prone to occur in these benign lesions. If malignant change does occur, it is usually of a low grade, though not necessarily so.

In general, these tumors should be removed surgically, the type of surgical procedure depending on the conditions found at the operating table.

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Hospital Admissions Rise As Length of Stay Drops

In the last 20 years, the rate of hospital admissions in this country has increased greatly for almost all diagnostic conditions. Today's hospital patient, however, usually goes home much sooner, according to the October issue of the statistical bulletin, *Progress in Health Service,* published by the Health Information Foundation.

The foundation compared data from the United States Public Health Service studies from 1928 to 1943 with hospital-admission data for July, 1957-June, 1958, derived from the Public Health Service's current National Health Survey.

During the 20 year period, the foundation reported, hospital utilization increased by about 20 per cent, from 715 to 851 patient days per 1,000 population. The average American now spends almost 1 day for each year of life in a general hospital.

Health in Physical Education Booklet

"Answers to Health Questions in Physical Education," a 24 page report prepared through the joint efforts of the American Medical Association and the National Education Association and published by the American Association for Health, Physical Education, and Recreation, helps answer questions that arise when children participate in school athletic programs and physical education. Infection and the spread of disease, responsibility for first aid, smoking and drinking, use of "pep pills," exercise and the healthy heart, precautions and responsibility in cases of injury, and other situations are discussed.

The booklet is available from the publisher, 1201 Sixteenth Street, N.W., Washington 6, D. C., at 50 cents each.

CASE REPORTS

Management of Adenomatosis or Polyposis of the Colon and Rectum

Report of 5 Cases

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EVERYONE agrees that polyposis of the colon is familial and hereditary, that the polyps have strong carcinogenic properties, and that a colectomy should be done when the diagnosis is made—the earlier in life the better. It is chiefly the methods of doing a colectomy that we should like to discuss. That there should be an evolution in the surgical treatment of this disease from four and five stage operations to one and two stage operations coinciding with the advent of antibiotics and bowel preparation is understandable. That there should be those who still do a complete colectomy that includes the rectum, with establishment of a permanent ileostomy, is not understandable.

For instance, in 1931, Mayo and Wakefield[8] described a "new" surgical technique for polyposis in 2 cases that involved five stages: (1) fulguration of polyps in the rectum and lower sigmoid; (2) right colectomy and ileosigmoidostomy; (3) left colectomy with sigmoid colostomy above the ileosigmoidostomy; (4) fulguration of remaining polyps through the colostomy; and (5) closure of colostomy. Two years prior to this, Lockhart-Mummery[7] reported 4 colectomies, the first operation being done in 1918. The rectum was removed in only one case. Fulguration of the polyps in the rectum with ileoproctostomy was done in the other 3 cases.

In 1931, Rankin[9] reported 3 cases in which a

colectomy was done in 3 stages: ileostomy, colectomy, and abdominoperineal resection of the rectum. Ten years ago Estes[4] reported a colectomy and ileostomy in 3 cases and advised "elimination of the colon and rectum as a possible origin of future cancer." Best[1] has reported that he fulgurates the polyps and does an ileoproctostomy. He thinks, as we do, that it is not necessary to sacrifice the rectum and do an ileostomy.

If the best interests of our patients are to be served, we think that the operation in all instances should be done in the following two stages: first, removal of all polyps from the rectum and lower sigmoid by electrocoagulation as high as can be reached; and second, colectomy with end-to-end ileoproctostomy as low as can be done. This obviates the necessity of making a highly objectionable ileostomy in a young person. We believe that it obviates any possibility of the patient developing a cancer of the rectum in later life because every millimeter of rectal surface (and for a distance in the ileum) can be inspected regularly, and any recurring polyps can be destroyed immediately by fulguration as an office procedure.

Preparation of the rectum by removal of the polyps can be difficult and tedious and may require many sittings in the office and hospital before it is accomplished. One 14 year old boy required three trips to the hospital and three sessions in the office before a colectomy could be done because the rectal mucosa was literally covered with polyps. Consequently, one needs to be highly conversant with the proper use of the electrocoagulating needle and snare. The latter is used on pedunculated polyps. Surface fulguration is a waste of time, while too much boldness may mean penetration of the bowel wall.

A "low" ileoproctostomy involves division of the superior hemorrhoidal vessels, which permits anastomosis well below the rectosigmoid and facilitates subsequent periodic examinations. Before these vessels are divided, the mesorectum on each side is incised and the rectum freed from the hollow of the sacrum as though removal of this organ were contemplated. This mobilizes the rectum so that it can be pulled up out of the pelvis several inches to facilitate anastomosis. The rectum is not mobilized anteriorly, nor are the lateral ligaments divided. Mobilization is adequate without division of the ligaments, and blood supply from the middle hemorrhoidal vessels is desirable. As stated elsewhere,[2] division of the bowel is always accomplished by scalpel instead of cautery. The latter makes for edema and slough, which may contribute to a poor anastomosis.

Best recommends biopsy of all polyps more than 5 mm. in diameter, but we believe that this is unnecessary. Only an occasional patient with polyposis could afford this luxury. In the second place, one needs an expert pathologist to interpret correctly changes in the epithelium frequently noted such as mitosis, hyperchromaticity, or lack of differentiation. One cannot temporize with a lesion that is clinically and microscopically a cancer. However, nearly all of these patients are young, and if a malignant polyp were present, we consider that it is early, that no metastases are present, and that local destruction is sufficient. In several instances it has been necessary (and not always desirable) to fulgurate a malignant polyp in a patient who did not have familial polyposis and to obtain an absolute cure.

Recently, Dr. Robert Turnbull[11] of Cleveland, Ohio, reported 86 patients with malignant polyps who were treated either by local excision, resection with anastomosis,[7] coagulation, or coagulation and radon seeds. Follow-up from 3 to 15 years disclosed only 2 deaths attributed to inadequate local treatment or to metastases. None of these patients had familial polyposis. For the most part, we think that a patient with familial polyposis is less likely to have a malignant polyp than a patient with a single polyp, because treatment is usually instituted much earlier in life. Neglect or procrastination in such cases may lead inevitably to malignancy.

After surgery, regular examinations every 6 to 12 months are done in the office and any recurring polyps are fulgurated. The suture line particularly is inspected carefully. We have been pleased to note that as the months and years pass, the patient develops fewer and fewer polyps so that with regular check-ups the fear of cancer diminishes and might well disappear. This observation also has been made by Cuthbert E. Dukes[3] of London, England, on 37 patients who had been treated by colectomy and ileorectal anastomosis. Also, Hubbard[6] recorded a case of polyposis in which the rectal polyps disappeared spontaneously after colectomy. We cannot explain why fewer polyps are noted with the passing of time. The presence of much thin scar tissue on the rectal mucosa may be a factor.

Dr. Herbert T. Hayes, Houston proctologist, and his co-authors presented this paper for the Texas Society of Gastroenterologists and Proctologists, April 19, 1959, in San Antonio.

Patients with familial or multiple polyposis should be subjected to destruction of the polyps in the rectum and in the lower sigmoid by electrocoagulation, followed by colectomy with end-to-end ileoproctostomy. Those with multiple polyposis who show malignancy in a polyp that is clinically not cancer can be treated in the same manner by fulguration.

Recently, William G. Smith[10] of Rochester, Minn., reviewed the histories of 201 patients with multiple polyposis in a search for the presence of the syndrome Gardner described in patients with familial polyposis of the colon. The salient features of the syndrome are (1) multiple epidermoid cystomatosis, and (2) a tendency toward proliferation of cells of mesenchymal origin, resulting in the formation of osteomas, fibromas, and desmoid tumors. Dr. Smith found 17 of the 201 patients to exhibit one or more of these abnormalities. Our patients are few in number and in no instance was Gardner's syndrome present. Dr. Smith suggests that a patient with epidermoid cysts and osteomas that produce definite external deformities might be suspected of having multiple polyposis of the colon.

REPORT OF CASES

CASE 1.—Mrs. M. E. A., aged 30, was first seen in April, 1948. She gave a history of removal of a growth from the sigmoid colon elsewhere 3 years previously. It was reported as adenocarcinoma. She had noticed blood on the stool for at least 9 years, had consulted 3 doctors other than the surgeon, and had never been examined by proctoscope. This is difficult to believe.

Twelve polyps in the rectum and sigmoid were fulgurated or snared and a colectomy with ileoproctostomy was done in July, 1948. There were many polyps of varying size throughout the specimen. During the past 10 years, 8 recurring polyps of the rectum have been fulgurated as office procedures. None were found on 3 examinations in the past 2 years. She has one to two stools daily and enjoys excellent health.

CASE 2.—R. J. McF., aged 21, was examined in February, 1954, after the family doctor removed a polyp that had prolapsed from the anus. The boy's father had died of "bowel trouble." After roentgen examination of the colon, 29 polyps were fulgurated from the rectum and a colectomy with ileoproctostomy was done in June, 1954. The pathologist reported the colon to be studded with multiple sessile polyps varying from 3 to 12 mm. in diameter as well as many pedunculated polyps. A few of the larger polyps were sectioned and no malignancy was found.

Since that time 18 polyps have been fulgurated at various times. None have been found on four examinations during the past 2 years.

CASE 3.—J. S., aged 14, an only child, was first seen in August, 1955. His father was known to have had multiple polyposis and died of cancer of the colon. History elicited only occasional abdominal cramps and "gas on the stomach." The boy had had four or five stools daily as long as he could remember. No bleeding was noted other than a trace on the toilet tissue at times. Roentgenograms of the colon showed multiple polyposis.

Examination revealed the rectal and sigmoid mucosa to be literally covered with hundreds of sessile polyps of varying size. Destruction of so many polyps seemed a hopeless task. Certainly total colectomy with permanent ileostomy would have been the easy way out for the doctor. But who wants to subject a 14 year old boy to the nuisance of an ileostomy the remainder of his life? Consequently, we went to work, and work it was. After the boy had numerous office procedures and three trips to the hospital for spinal anesthetics, we finally cleared the rectum of polyps over a period of 8 months. During this time, two annular strictures developed in the upper rectum, which is not too surprising. These flattened out and disappeared after several radial incisions. Several biopsies of polyps removed in the hospital were reported benign adenomas. A colectomy and ileoproctostomy was done in April, 1956. The pathologist reported approximately 3,500 adenomas of varying sizes were present in the specimen. No malignancy was found. One month later a low grade obstruction occurred at the site of anastomosis. This was relieved by insertion of a large rectal tube through the anastomosis for several days. Three months after surgery the proctoscope could be passed through the anastomosis. Three small adenomas at the suture line and 3 in the rectum were fulgurated. The boy had been examined six times during the past 2 years and no polyps have been found. At present he has only two or three stools daily, attends school regularly, and enjoys excellent health. This case proves that the rectum cannot have so many polyps but that they can be destroyed by fulguration.

CASE 4.—D. R. Van G., aged 33, was first seen in consultation at the patient's request in February, 1954. He was under the care of an excellent proctologist in another city who had correctly diagnosed familial polyposis and had fulgurated many polyps from the rectum. He was not seen again until September, 1958, at which time he stated that he was a close friend of one of our patients who had had a colectomy and was ready for surgery. During this 4 years, he had had many polyps fulgurated from the rectum, and his father had died 2 years previously from cancer of the colon.

After 12 polyps were fulgurated from the rectum, a colectomy with ileproctostomy was done. At that time a firm round tumor about 2 cm. in diameter was noted in the ileum about 20 cm. from the ileocecal valve. There was also a tiny firm nodule in the mesentery near the larger tumor. This latter proved to be a carcinoid tumor and the small nodule a metastatic carcinoid. The colon was studded with polyps "too numerous to count." Several sections of the larger polyps were reported benign and 140 negative lymph nodes were found.

The patient was examined by proctoscope 1 month later; the suture line was easily seen 6 inches from the anus, and no polyps were present.

CASE 5.—Dr. J. W. P., aged 46, presented himself for examination in March, 1958. He stated that 2 older brothers, aged 48 and 60 respectively, living in another state were told that each had polyposis of the colon. The history was not unusual. He had seen traces of blood on the tissue at times. Bowel movements were regular once daily.

Examination disclosed several large hemorrhoids, one large prolapsed anal papilla, and the rectum and sigmoid to be full of polyps of various size. Roentgen ray confirmed the diagnosis of polyposis coli.

The patient entered the hospital where the rectum was cleared of polyps by electric needle and snare and the large anal papilla excised. The pathologist reported benign adenomas. Six months later he was examined and only 2 small polyps were fulgurated from the rectum. After another 2 months he reentered the hospital where the polyps in the sigmoid were snared or fulgurated and the hemorrhoids were removed. A colectomy is yet to be done.

SUMMARY

We believe strongly that all patients with familial or multiple polyposis should be subjected to destruction of the polyps in the rectum and in the lower sigmoid by electrocoagulation, followed by colectomy with end-to-end ileoproctostomy. End-to-end anastomosis permits inspection of the distal ileum where polyps may recur.

No matter how difficult or tedious, polyps always can be removed from the rectum by anyone accustomed to using the electrocoagulating current.

Patients with multiple polyposis who show malignancy in a polyp that is clinically not a cancer (soft, nonulcerated, and freely movable) can be safely treated in the same manner by fulguration. This does not always hold true for patients with a single malignant polyp.

A "low" ileoproctostomy involves mobilization of the rectum with division of the superior hemorrhoidal vessels, but without division of the lateral ligaments.

Regular periodic examinations are requested after surgery and any recurring polyps fulgurated in the office. As time passes, fewer and fewer polyps appear.

Gardner's syndrome was not present in any of our patients.

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Myxoma Of the Heart

Case Report and Review

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PRIMARY TUMORS of the heart are rare,[17] but the possibility of their surgical cure has removed them from the category of mere medical curiosities. The most frequently encountered such tumor is the atrial myxoma.[17] It is estimated that more than 200 cases of this condition have already been reported,[21] and additional instances are turning up with considerable regularity.[3, 13, 14, 16, 26, 32, 41, 46, 48] However, the high proportion of autopsy diagnoses clearly indicates a continuing need for dissemination of knowledge about this perplexing malady. It is hoped, therefore, that the following account of a recent experience with a case of left atrial myxoma may help others to escape the diagnostic pitfall which I, like many before me, was unprepared to avoid.

CASE REPORT

Mrs. G. B., a 50 year old married housewife, was admitted to Seton Hospital on January 15, 1958, having been referred from a nearby community by her regular physician because of apparent congestive heart failure.

She had seemed well until June, 1957, when she had a fever and a cough lasting 2 weeks. After this her throat felt sore for several weeks, and she remained generally fatigued and "run-down."

In late September, she again developed a cough, which was nonproductive and noted especially on recumbency. On

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Atrial myxoma is the most frequent primary tumor of the heart. A fatal case is reported in the hope that preoperative diagnosis in the future may result in more successful treatment. Pathology, clinical features, diagnosis, and surgical treatment of cardiac myxoma are reviewed.

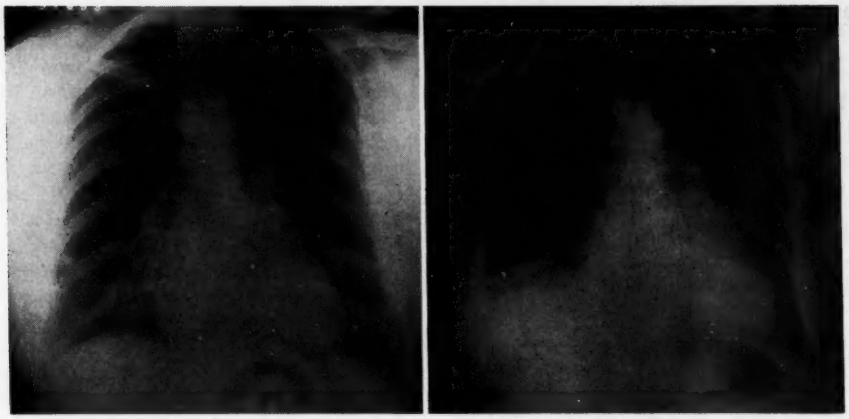

Fig. 1. Roentgenograms showing cardiac silhouette in a case of left atrial myxoma: left, made on October 16, 1957, shortly after onset of symptoms; right, made on January 16, 1958.

lying down she experienced shortness of breath and a sense of constriction about the lower chest, so that she sometimes had to sit up for several hours at night.

On October 15 she was admitted to the Scott and White Clinic, where she was followed until sometime in December. During this period no heart murmur was detected; but it was observed that the pulse tended to be rapid, ranging as high as 120 per minute, and that the erythrocyte sedimentation rate ranged from 30 to 49 mm. per hour. A chest x-ray made during this phase is shown in figure 1. An electrocardiogram was interpreted as normal except for sinus tachycardia, ventricular extrasystoles, and low voltage. Sputum and bronchoscopic studies revealed bilateral suppurative bronchitis. Skin sensitivity to several allergens was noted.[53]

The patient had partial relief from antibiotic and steroid therapy; but symptoms continued, and she gradually became weaker and more easily fatigued, so that for 2 months prior to admission she had hardly been able to do any of her usual housework.

Four days before admission she was seen by her regular physician, who felt she was in congestive heart failure and admitted her to the local hospital. She seemed to improve very little on a regimen of bed rest, digitalization, and sodium restriction, so she was referred to me for further study and management.

Family and marital histories were irrelevant except for the fact that a sister, aged 41, had been considered recently to have acute rheumatic fever.

At age 10 years the patient was intermittently ill for more than a year with "malaria." Six years previously she had suffered for awhile with pain in the right shoulder and arm. There was no other rheumatic history and no history of heart murmur, hypertension, or chest pain.

On admission to Seton Hospital the patient was well nourished but appeared pale and fatigued. She coughed occasionally. Respiration was rather shallow but not rapid or labored. The blood pressure was 94/80 mm. of mercury and the pulse 120 per minute with frequent periods of slowing and irregularity, although the basic rhythm was regular. There was no cyanosis or distention of neck veins.

The precordial impulse was forceful and diffuse, extending laterally just outside the midclavicular line in the fifth intercostal space. No thrill was noted, but there was a distinct systolic shock palpable over the precordium. Percussion suggested moderate cardiac enlargement along the left upper border. The pulmonic second sound was sharp and markedly accentuated. The first mitral sound was also sharp and strikingly accentuated, having an impure or reduplicated quality in some locations about the apex. The first heart sound was very loud in the left posterior axillary region and could be heard distinctly over the entire posterior aspect of the thorax, although with some reduction in intensity on the right. There was a faint, blowing aortic systolic murmur, but no mitral murmur could be detected no matter whether the patient was sitting, recumbent, or in the left lateral decubitus position. One was struck by the contrast between the vigor of the heart action and the weakness of the peripheral pulse. There were medium moist rales at both lung bases. Dullness, diminished breath sounds, and absent tactile fremitus were present over the lower third of the right chest posteriorly.

The liver was not congested, and there was no edema. Joint abnormalities were not noted. The remainder of the examination was not remarkable.

Routine blood counts, urinalysis, serology, and bleeding and clotting tests were within normal range. The erythrocyte sedimentation rate (Wintrobe) was 21 mm. per hour and the antistreptolysin-O titer 166 units. The blood urea nitrogen was 20.5 mg. per 100 cc. and the serum transaminase 45 units.

The initial electrocardiogram showed partial atrioventricular block, which was apparently related to digitalis, as the conduction defect diminished during temporary omission of

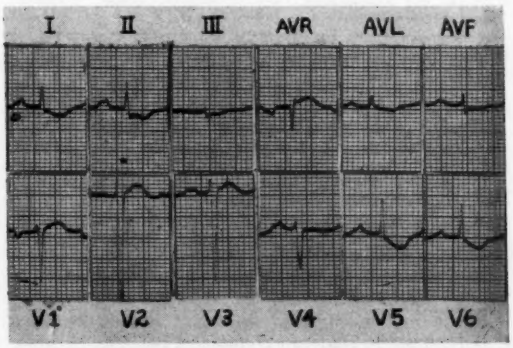

Fig. 2. Electrocardiogram in a case of left atrial myxoma; recorded on January 1, 1958, after digitalization.

the drug (fig. 2). Roentgenograms and fluoroscopy of the chest showed "generalized cardiac enlargement with some straightening of the left border"; the lung fields were clear except for some increased markings in the right infrahilar region and a small right pleural effusion (fig. 1). Moderate left atrial enlargement posteriorly was demonstrated by the barium swallow technique.

My first thought was of heart failure of uncertain cause. The possibility of left atrial myxoma was considered. However, the absence of any abrupt change in symptoms on various postural maneuvers, along with an unfortunate reticence about making a rare diagnosis, finally led me to conclude the patient had rheumatic heart disease with mitral stenosis. One experienced consultant thought that a faint mitral diastolic rumble could be detected, but I was unable to be sure of this finding.

During a 10 day period in the hospital the patient was on a program of bed rest, strict low sodium diet, maintenance of digitalization, and ammonium chloride and mercurial diuresis. She remained afebrile, and the pulse rate fluctuated between 70 and 100 per minute. Although her lung signs cleared and the cough diminished, she continued to feel weak. The blood pressure ranged from 84/50 to 100/60 mm. of mercury, most systolic levels being below 100 mm. of mercury. On January 20 the blood urea nitrogen was 17.5 mg. per 100 cc., and the erythrocyte sedimentation rate was 39 mm. per hour.

Following the patient's discharge from the hospital on January 25, arrangements were made for her to be studied at the Cardiopulmonary Laboratory of the Southwestern Medical School of the University of Texas in Dallas. The patient was referred there with a clinical diagnosis of mitral stenosis and the expectation that mitral valve surgery would be indicated.

At the time of the patient's admission to Parkland Memorial Hospital on February 13 "a grade 2 crescendo presystolic rumble well localized at the apex" was noted. On February 14 right and left heart catheterization yielded the data recorded in table 1. All pressures recorded from portions of the circulatory system between the tricuspid and mitral valves were markedly elevated, while left ventricular and aortic pressures were low. Figure 3 graphically represents the relationship between left atrial and left ventricular pressures; the mean diastolic gradient between these two chambers was estimated at about 24 mm. of mercury, which is far above the normal value of 2 or 3 mm. It was concluded that the patient had severe mitral stenosis and should have surgery to correct the valvular obstruction.[27]

TABLE 1.—*Cardiac Catheterization Data in a Case of Myxoma of the Left Atrium.*

	Pressures (mm. of Hg.)		
	Systolic	Diastolic	Mean
Right atrium			0
Right ventricle	107	5	34
Pulmonary artery	109	35	53
Pulmonary wedge			33
Left atrium			26
Left ventricle	50-78	1-2	
Aorta	50-72	38-48	
Cardiac output	3.56 liters/min.		
Cardiac index	2.12 liters/min.		

While the left atrial catheter was still in place, the patient suddenly lost consciousness and upon recovery showed right lower facial weakness, paresis of the right arm, inability to speak, and a positive Babinski sign on the right. Although the neurological symptoms improved considerably during the ensuing week, it was decided to delay mitral surgery until further improvement had occurred, so the patient was allowed to return home.[27]

At the time of the patient's second admission to Parkland Memorial Hospital on April 17 she had developed atrial fibrillation and was in both left and right heart failure, showing dyspnea on slight effort, orthopnea, moist rales at the lung bases, marked hepatic congestion, and slight dependent edema. She complained of muscular and joint pains, especially in the right shoulder and hand, and inflammatory nodules were noted in both palms. The sedi-

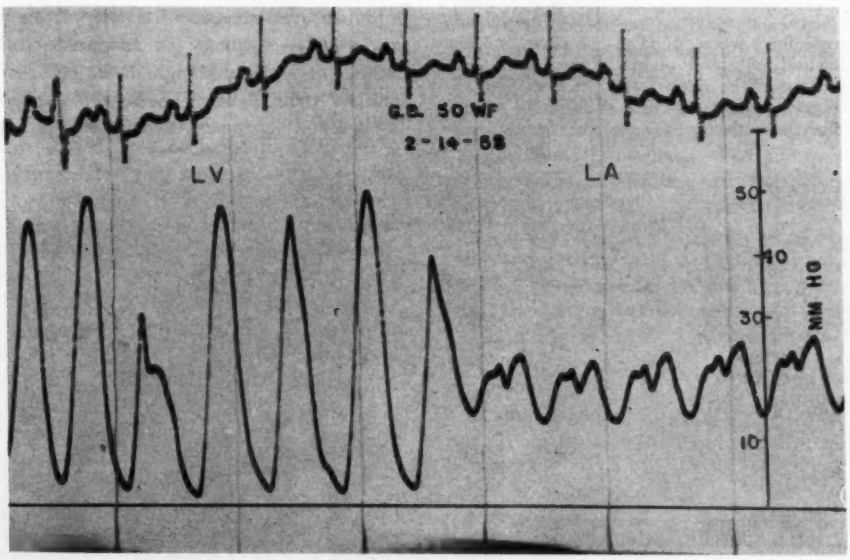

Fig. 3. Left ventricular (left) and left atrial (right) pressure tracings obtained by left heart catheterization in a case of left atrial myxoma.

mentation rate was 39 mm. per hour. The patient was given aspirin and ascorbic acid because of suspected rheumatic activity, and blood cultures were done to rule out subacute bacterial endocarditis.

Surgery was postponed in the hope that the patient's condition might be improved. However, despite intensification of the diuretic program, she continued to gain weight, developed bilateral pleural effusions, and showed increasing hepatomegaly.

In desperation, it was decided to proceed with surgery on May 7. The surgeon encountered a huge left atrial myxoma arising from a pedicle in the region of the fossa ovalis, virtually filling the left atrium, extending into both right pulmonary veins, and protruding through the mitral valve into the left ventricular cavity.

Although the surgeon would have preferred to close the incision and proceed with removal of the tumor under open heart conditions at a second operation, it was decided the patient's condition was so precarious that her only chance of survival lay in the immediate relief of circulatory obstruction. Accordingly, the tumor was detached from the interatrial septum by the exploring intracardiac finger and forced out through a second, larger atriotomy. Thereafter, atrial fibrillation was replaced by sinus rhythm.

The patient survived operation and appeared to do well for the first 8 hours postoperatively. Soon afterwards, however, she developed failure of the left ventricle and finally left ventricular arrest, which failed to respond to prolonged manual systole and other resuscitative measures, even though the right ventricle continued to contract spontaneously. The patient died early on the morning following operation.

Examination of the tumor showed it to be of gelatinous consistency. Below an area of constriction corresponding to the position of the mitral ring, a 2.5 cm. intraventricular extension was undergoing degenerative changes at the tip. Microscopy revealed the typical structure of a myxoma (fig. 4).[58]

The heart weighed 450 Gm. at autopsy, and there was hypertrophy of the left atrium and right ventricle. The left ventricle was dilated but not hypertrophied. At the site of the foramen ovale there was a round plaque of thrombotic material. The mitral valve was normal. Lungs, liver, and spleen were congested. The left frontal cortex showed an area of cystic degeneration. Microscopic examination of the lung showed fibrosis of the alveolar septums, hemosiderin laden macrophages, a moderately severe degree of pulmonary artery sclerosis, and fibrinous thrombi in a number of capillaries.

DISCUSSION

Characteristics of Tumor.—Cardiac myxoma, formerly regarded by some as a peculiar form of organized thrombus, is now generally considered a true benign neoplasm of connective tissue origin. Myxomas are generally polypoid in shape, usually arising from a relatively narrow pedicle attached to the interatrial septum at, or near, the fossa ovalis. They are usually of a friable, gelatinous consistency but may be elastic or firm. The smooth and glistening surface may have a rounded, pedunculated, or villous topography and is sometimes the site of true thrombus formation. Areas of necrosis or hemorrhage, and occasionally of calcium salt deposition, may occur. Microscopically the myxoma consists of a mucinous substance containing sparsely scattered connective tissue cells, vascular elements, and collagenous deposits, all enveloped by surface endothelium. About 75 per cent of cardiac myxomas are left atrial; except for rare instances of valvular or ventricular origin, the rest are right atrial.[17]

Clinical Features.—Cardiac myxomas occur in all periods of life, but most cases develop between the ages of 30 and 60.[17] Females are affected about three times as frequently as males.[12]

Most manifestations of the disease are attributable either to circulatory obstruction within the heart or to embolism, a combination equally characteristic of certain other forms of heart disease, notably rheumatic mitral stenosis.[7, 9, 11, 12, 15, 16] In the case of right atrial myxoma the advanced clinical picture is that of intractable right heart failure (or "inflow stasis") with bulging neck veins, engorged liver, ascites, and dependent edema. Tricuspid valve disease

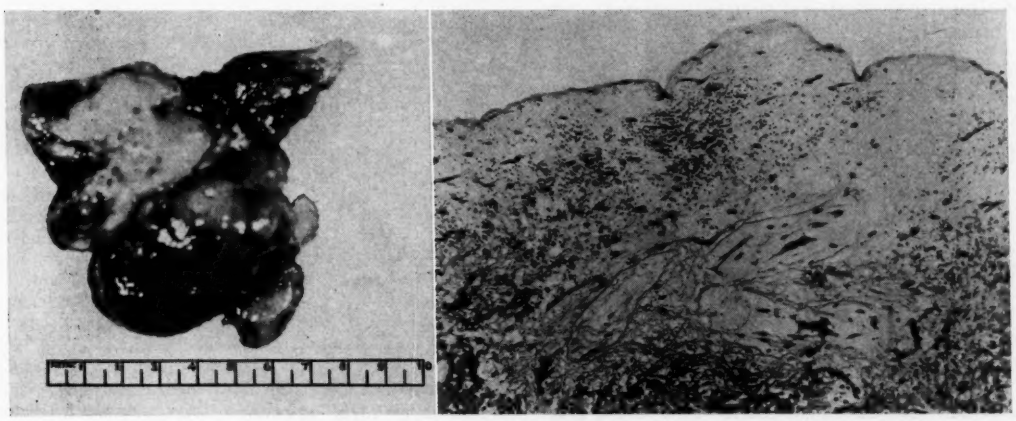

Fig. 4. Left atrial myxoma, gross surgical specimen (left) and microscopic section (right).

and constrictive pericarditis may be closely simulated. Rarely the picture is complicated by the development of a right-to-left shunt through an atrial septal defect, leading to low arterial oxygen saturation with or without cyanosis.[5, 36]

In left atrial myxoma, as in mitral stenosis, cough, dyspnea, hemoptysis, palpitation, and easy fatiguability are cardinal manifestations. However, the pattern of onset and progression of symptoms may vary from that usually seen in the commoner forms of heart disease. Although a few cases run a very chronic course,[2, 8, 49] most patients die within 2 years, and many within a few months, of the onset of symptoms. The initial symptoms may appear abruptly in an individual with no previous evidence, or known etiologic basis, of heart disease. Because of the mobility of many myxomas symptoms often progress in a highly irregular and episodic fashion and may be conspicuously influenced by posture. Intermittent prolapse of the tumor into the valve orifice may cause acute attacks of dyspnea, pulmonary edema, tachycardia, syncope, peripheral circulatory collapse, and even sudden death. Some authors have commented on the absence of orthopnea,[12] stating that valvular obstruction is relieved during recumbency; however, as in the present case, orthopnea is sometimes present. The patient may himself discover that certain positions aggravate his symptoms, while others bring relief. Substernal pain, either during rest or effort, has been present in many cases. Both atrial fibrillation and paroxysmal atrial tachycardia have been reported.

It must not be supposed that the impressive and much emphasized postural effects are invariably present. In one series of 30 cases there were only 7 showing these phenomena.[15] The absence of such symptoms in my case caused me prematurely to rule out the correct diagnosis. Perhaps the main "tip off" in this patient should have been the rapid progress of heart failure and the very limited and temporary response of symptoms to medical therapy, features which have been apparent in most published cases.

The course of the disease is frequently complicated by arterial embolism (either of tumor fragments or clots) occurring even in the face of regular sinus rhythm. Occasionally embolism is the initial manifestation of the disease.[35, 50] Recurring obstruction of cerebral, visceral, and peripheral arteries may produce a bizarre and confusing picture.[15] In one unusual case congestive failure and heart murmurs abruptly disappeared when the patient suffered a "saddle embolus" to the aortic bifurcation; on recovery from this catastrophe the patient was apparently well for over a year before heart failure and murmurs reappeared.[10]

Intermittent fever (possibly due to showers of tiny emboli or to tumor necrosis), arthralgia, and elevated sedimentation rate occur commonly in atrial myxoma, often leading to an erroneous diagnosis of acute rheumatic fever. Subacute bacterial endocarditis may be imitated almost to perfection when a febrile course is accompanied by multiple emboli and changing heart murmurs.[15]

The most distinctive physical signs of atrial myxoma are systolic and diastolic murmurs often indistinguishable from those of tricuspid or mitral disease. Some state that in left atrial myxoma the "opening snap" of the mitral valve, a characteristic sign in rheumatic mitral stenosis, is absent.[10] An important differential feature is the tendency in many cases of myxoma for murmurs rapidly to appear and disappear or to change in quality and intensity, not only with the passage of time but also with changes in the position of the patient. The first recorded clinical diagnosis of atrial myxoma was based on the observation that a mitral diastolic murmur detected with the patient erect was replaced by a mitral systolic murmur during recumbency.[40] This variability of murmurs may cause competent examiners, seeing a patient at different times and in various positions, to disagree widely as to the presence and character of abnormal findings. As one author aptly stated, his patient's hospital course "was punctuated by frequent changes both in cardiac rhythm and in consultants' views of the malady."[5] In occasional cases murmurs have not been detected.[51]

Forceful precordial impulse and marked accentuation of the first mitral and second pulmonic sounds are often noted in cases of left atrial myxoma. These were the only definite auscultatory findings in my patient at the time I examined her. In contrast, the systolic blood pressure is usually low (commonly less than 100 mm. of mercury) and the peripheral pulse weak, especially late in the disease. One gains the impression of a heart struggling valiantly against great odds and barely "making the grade."

Diagnostic Procedures.—The more routine diagnostic procedures rarely suffice to establish the presence of atrial myxoma, so that in most reported cases the diagnosis has been made either at the autopsy or the operating table.

The electrocardiogram may be normal or show evidence of atrial enlargement and right ventricular hypertrophy. Such patterns may indeed point to the site of the lesion, but they give no direct information as to its etiology.

Phonocardiography may cast doubt on the diagnosis of rheumatic mitral stenosis by establishing the absence of an "opening snap" or demonstrating atypical timing of the diastolic murmur.[10]

Hemodynamic data from published cases of atrial myxoma are summarized in table 2. The consistent demonstration of hypertension proximal to the lesion is not helpful in distinguishing obstruction by tumor

TABLE 2.—*Atrial Myxoma: Published Hemodynamic Data.*
(Pressures in millimeters of mercury; mean values in parentheses)

Authors	Sex Age	Tumor Site	SVC	RA	RV	PA	PC (wedge)	LA	LV	Cardiac Index (L/M²/min.)	Remarks
Bahnson & Newman[1]	F 54	Right atrium		18/3-9(12) 20/8-12(14)	18/0-4(9)	14/5(9)	5			1.34	
Coates & Drake[5]	F 50	Right atrium		(3.5)	17/0-2(5)	15-20/5-7	4	(2) Catheter thru IA defect	125/0-2.5 (40) Catheter thru IA defect		Interatrial septal defect with right-to-left shunt
Cooley, Morris, & Attar[6]	F 43	Right atrium	18/7 (15)	19/7(15)	10/0(4)	15/5(5)					
Cooley, Morris, & Attar[6]	F 48	Right atrium	(22)	(22)	15/5	15/9				1.24	
Ellis, Mankin, & Burchell[9]	M 48	Right atrium		24-30 (systolic)							Direct measurement at time of surgery
Paquet[16]	M 39	Right atrium	(18)	(13)	(8)	(11)	1				
Brock[25]	F 45	Left atrium				90/41 107/43	26-31			Cardiac output 4.9 (rest) 2.9 (rigor)	Lower pressure readings at rest; higher ones during rigor
Chapman[28]	F 37	Left atrium		(11.4)		82/43	30			Cardiac output 1.6	Patient in right heart failure
Cooley, Morris, & Attar[6]	F 49	Left atrium		(4)	60/5	45/25	(20)				
Davis & Andrus[8]	F 44	Left atrium		16/8		91/34				2.8	Patient in severe chronic right heart failure
Ellis, Mankin, and Burchell[9]	F 45	Left atrium			61/6 53/4-90/0	61/28 50/21-90/30	34/15 25-40 (systolic)			2.1	Fluctuation of pressures between limits indicated
Harrison, McCormack & Ernstene[37]	F 50	Left atrium		(7)	88/9	91/41(62)	26			3.57	
Horlick & Merriman[30]	F 46	Left atrium				40/18		33/10	96/0		Direct measurement at time of surgery
Likoff, Geckeler, & Gregory[42]	F 33	Left atrium		6/2	80/6	70/28 81/37					
Morton[15]	F 47	Left atrium		(-4)	(12)	(32)	(28)				
Paquet[16]	M 41	Left atrium		(3.5)	(27.5)	(54)	35				
Towers & Newcombe[50]	M 45	Left atrium				106/54		61/20			Direct measurement of pressures by left bronchial route
Van Buchem & Eerland[51]	M 45	Left atrium		(7)	120/0	120/50	40				
Present Report[27]	F 50	Left atrium		(0)	107/5 (34)	109/35(53)	33	(26)	50-78/1-2	2.12	Both right and left heart catheterization done

SVC = superior vena cava
RA = right atrium
RV = right ventricle
PA = pulmonary artery
PC = pulmonary capillary
LA = left atrium
LV = left ventricle

from that due to valvular disease. In one case unusually wide fluctuations of pressure in the right ventricle and pulmonary circuit were interpreted as evidence of intermittent mitral valve (or pulmonary vein) occlusion, such as might be caused by a mobile tumor mass.[9] Recently, left atrial pressure curves (obtained by the intrabronchial method) from a case of left atrial myxoma were observed to show a peculiar configuration possibly produced by a ball-valve effect of the tumor in the mitral orifice;[50] however, the tracing obtained in my patient (fig. 3) shows a very different form. The occurrence of cerebral embolism during left atrial catheterization in this case demonstrates a special hazard of this procedure in the presence of atrial tumor; this complication, developing in the absence of atrial fibrillation, should arouse suspicion of atrial myxoma. In cases of right atrial myxoma the advancing cardiac catheter may be observed, as it encounters the tumor mass, to follow a circuitous course which is strongly suggestive of the nature of the obstructing lesion.[6]

Conventional radiographic technique may show pulmonary vascular engorgement and enlargement of the left atrium, pulmonary outflow tract, and right ventricle in cases of left atrial tumor, but of course none of these findings is specific. In some cases, presumably due to pulmonary vein obstruction by the tumor, there is little or no left atrial enlargement despite the presence of severe pulmonary congestion. In 2 cases of right atrial myxoma the presence of calcification within the tumor made specific diagnosis possible without resort to special techniques.[34, 38] Electrokymograms recorded in different body positions were interpreted in one instance as indicating paroxysmal mitral occlusion.[45]

At present only angiocardiography offers a reliable means of establishing the presence of atrial tumor preoperatively. In several reported cases atrial myxomas have been outlined clearly by this technique,[5, 10, 21, 31, 35, 36] which certainly should be employed in any case where there is reasonable suspicion of the disease.

Surgical Treatment.—Attempts at surgical removal of atrial myxomas by closed-heart methods have been

TABLE 3.—*Surgical Removal of Atrial Myxomas: Successful Cases.*

Authors	Year	Sex Age	Tumor Site	How Diagnosed	Adjunct to Surgery	Remarks
Crafoord[21]	1955	F 40-50	Left atrium	Angiocardiography	Extracorporeal circulation	First reported case
Bigelow, Dolan, & Campbell[24]	1955	F 56	Left atrium	Mitral exploration	Hypothermia	
Scannell, Brewster, & Bland[19, 20]	1956	M 33	Left atrium	Mitral exploration	Hypothermia	Ventricular fibrillation; 2 hr. of manual systole
Bahnson, Spencer, & Andrus[2]	1957	F 57	Left atrium	Mitral exploration	Extracorporeal circulation	Murmur for 30 yr. and symptoms for 20 yr.
Hanlon[26]	1957	F 61	Right atrium	Angiocardiography	Extracorporeal circulation	Complicated by interatrial defect with right-to-left shunt and thrombocytopenic purpura.
Chin and Ross[4]	1957	M 25	Left atrium	Mitral exploration	Hypothermia	Used right atrial approach. Ventricular fibrillation; manual systole 1 hr.
Robertson[18]	1957	F 38	Left atrium	Mitral exploration	Hypothermia & coronary perfusion	
Hopkins[30]	1958	M 26	Right atrium	Tumor calcified on conventional x-ray	Hypothermia	Case reported by Medical News (Ciba) in 1956
Fatti[23]	1958	F 45	Left atrium	?	None	Used finger thru apex of left ventricle to control tumor. No details regarding post-operative course
Ellis, Mankin, & Burchell[9]	1958	F 45	Left atrium	Mitral exploration	Extracorporeal circulation	Right atrial approach used
Ellis, Mankin, & Burchell[9]	1958	M 48	Right atrium	Tricuspid exploration	Extracorporeal circulation	
Malm, Henry, & Deterling[44]	1958	?	Left atrium	?	Extracorporeal circulation	Abstract; no details
Coates & Drake[5]	1958	F 50	Right atrium	Angiocardiography	Extracorporeal circulation	Complicated by interatrial defect with right-to-left shunt
Belcher[22]	1958	F 52	Left atrium	Mitral exploration	Hypothermia	Right atrial approach. No delay between operations
Gerbode, Osborn, Robson, Braimbridge, & Hultgren[10]	1958	F 51	Left atrium	Angiocardiography	Extracorporeal circulation	Symptoms relieved for long period after embolus to aortic bifurcation
Cooley, Morris, & Attar[6]	1958	M 50	Left atrium	Mitral exploration	Extracorporeal circulation	
Cooley, Morris, & Attar[6]	1958	F 49	Left atrium	Mitral exploration	Extracorporeal circulation	Only 4 hr. interval between operations
Cooley, Morris, & Attar[6]	1958	F 48	Right atrium	Circuitous course of catheter in right atrium	Extracorporeal circulation	

almost uniformly unsuccessful.[1, 8, 21, 22, 30, 34, 35, 42] Under these conditions it is extremely difficult to be certain of complete excision of the tumor[1, 35] and to avoid embolization of fragments.[8, 30, 34, 42] Many myxomas are quite large, almost filling the atrium and extending into the ventricle or pulmonary veins (as in the reported case), so that the mass must be strongly compressed or deliberately fragmented in order to allow delivery through a small atrial incision. The technical feasibility of complete removal by the closed technique was demonstrated in this case by Dr. Hugh E. Wilson, who clearly recognized the hazards of the method and resorted to it only because the patient would surely not have survived continued obstruction long enough to permit a second operation. In one case, by the use of an ingenious snaring device, enough of a left atrial myxoma was removed to relieve, at least temporarily, the patient's obstructive symptoms.[47] I have found reported only a single instance in which complete removal was apparently successful under closed conditions; in this case the surgeon inserted a finger through a small, purse-stringed incision in the tip of the left ventricle, thereby dislodging the tumor and pushing it out through a left atrial incision.[33]

Since the first successful removal of an atrial myxoma in 1955 by Crafoord,[31] who employed open-heart technique and an extracorporeal circulatory device, reports of at least 17 additional successful cases have appeared in the literature. These reports are summarized in table 3. With the one exception already mentioned,[33] all definitive operations were performed by the open method under either hypothermia or extracorporeal circulation. In at least 10 cases the diagnosis was made at an initial closed-heart operation for presumed mitral (or tricuspid) stenosis, so that a second procedure under open-heart conditions was required in order to avoid the high risk already mentioned. The interval between operations in these cases has varied from less than a day[6, 23] to several months. Some state that the risk of embolism following the initial operation makes it advisable to perform definitive surgery with the least possible delay.[23, 25] A number of fatalities incident to open-heart surgery for atrial myxoma have been reported,[25, 29, 43, 51] but insufficient data are available for an accurate estimate of operative mortality rates. Ventricular fibrillation has been a conspicuous hazard associated with the use of hypothermia.[4, 19, 25, 51]

The advantage to the patient with this disease of a correct preoperative diagnosis is obvious. Only thereby is he spared the extra risk, expense, and loss of time entailed by an initial exploratory operation. As we are so often told, one must think of the possibility of a rare disease in order to diagnose it correctly. This initial step avails nothing, however, if we then proceed to rule out our rarity on the basis of an inadequate concept of its clinical behavior. Reasonable suspicions should be kept alive and passed on to those in a position to perform definitive diagnostic procedures.

SUMMARY

A fatal case of left atrial myxoma, including hemodynamic data and surgical and autopsy findings, is reported.

The pathology, clinical features, diagnosis, and surgical treatment of cardiac myxoma are briefly reviewed.

I wish to acknowledge my indebtedness to Dr. J. G. Sewell of Belton, who referred the case reported; to Drs. A. F. Wolfe and A. W. Sommer of Temple, who made their clinical data and roentgenograms available; to Drs. C. B. Chapman and H. E. Wilson of Dallas, who allowed use of their hemodynamic, surgical, and pathological findings; and to Dr. D. A. Cooley of Houston, who permitted use of material prior to publication.

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Additional references may be obtained from the author.

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MEDICAL NEWS

★ Coming Meetings

Texas Medical Association, Fort Worth, April 9-12, 1960 (Executive Board, Sept. 27, 1959). Dr. F. W. Yeager, Corpus Christi, Pres.; Mr. C. Lincoln Williston, 1801 North Lamar Blvd., Austin, Exec. Secy.

American Medical Association, Dallas (Clinical Session), Dec. 1-4, 1959. Dr. Louis M. Orr, Orlando, Fla., Pres.; Dr. F. J. L. Blasingame, 535 North Dearborn, Chicago 10, Exec. Vice-Pres.

Current Meetings

NOVEMBER

Radiological Society of North America, Chicago, Nov. 15-20, 1959. Dr. Lawrence L. Robbins, Boston, Pres.; Dr. Donald S. Childs, 713 E. Genesee, Syracuse 2, N. Y., Secy.

Southern Medical Association, Atlanta, Ga., Nov. 16-19, 1959. Dr. Milford O. Rouse, Dallas, Pres.; Mr. V. O. Foster, 2601 Highland Avenue, Birmingham 5, Executive Secy.

Southwestern Medical Association, Roswell, N. Mex., Nov. 5-7, 1959. Dr. A. R. Clauser, Albuquerque, Pres.; Dr. M. D. Thomas, 1501 Arizona St., 12-D, El Paso, Secy.

Private Clinics and Hospitals Association of Texas, Dallas, Nov. 28-29, 1959. Dr. Jack S. Maxfield, Dallas, Pres.; Mr. J. J. George, 3404 54th St., Lubbock, Executive Secy.

Blackford Memorial Cancer Lectures, Denison, Nov. 11, 1959. Dr. R. G. Gerard, 509 S. Mirick, Denison, Chm.

DECEMBER

American Academy of Dermatology and Syphilology, Chicago, Dec. 5-10, 1959. Dr. A. C. Cipollaro, New York, Pres.; Dr. Robert R. Kierland, Mayo Clinic, Rochester, Minn., Secy.

Texas Academy of Internal Medicine, San Antonio, Dec. 4-5, 1959. Dr. Merton M. Minter, San Antonio, Pres.; Dr. Hugo T. Engelhardt, 1216 Main, Houston, Secy. Meetings restricted to members.

Texas Division, American Cancer Society, Austin, Dec. 10-12, 1959. Dr. John A. Wall, Houston, Pres.; Mr. Curt W. Reimann, 5014 Bull Creek Rd., Austin 3, Executive Director.

Texas Rheumatism Association, San Antonio, Dec. 4, 1959. Dr. Warren W. Moorman, Fort Worth, Pres.; Dr. J. Morris Horn, 3707 Gaston, Dallas, Secy.

Texas State Board of Medical Examiners, Fort Worth, Dec. 3-5, 1959. Dr. M. H. Crabb, Fort Worth, Secy.; Mrs. Luanna Reddin, 1714 Medical Arts Bldg., Fort Worth, Assistant Secy.

National and Regional

American Academy of Allergy, Hollywood-by-the-Sea, Fla., Jan. 11-13, 1960. Dr. Francis C. Lowell, Boston, Pres.; Dr. Joseph Noah, 100 N. Euclid Ave., St. Louis 8, Mo., Secy.

American Academy of General Practice, Philadelphia, March 19-24, 1960. Dr. Fount Richardson, Fayetteville, Ark., Pres.; Mr. Mac F. Cahal, Volker Blvd. at Brookside, Kansas City 12, Executive Secy.

American Academy of Ophthalmology and Otolaryngology. Dr. John H. Dunnington, New York, Pres.; Dr. W. L. Benedict, 15 Second St. S.W., Rochester, Minn., Secy.

American Academy of Pediatrics, Atlantic City, April 20-22, 1960. Dr. William W. Belford, San Diego, Calif., Pres.; Dr. E. H. Christopherson, 1801 Hinman Ave., Evanston, Ill., Executive Director.

American Association for Maternal and Infant Health. Dr. M. Edward Davis, Chicago, Pres.; Mrs. Patricia Dorr, 116 S. Michigan Ave., Chicago 3, Executive Director.

American Association for Thoracic Surgery, Miami Beach, May 11-13, 1960. Dr. William E. Adams, Chicago, Pres.; Dr. Hiram T. Langston, 7730 Corondelet Ave., St. Louis 5, Secy.

American Association of Genito-Urinary Surgeons, Dearborn, Mich., May 11-13, 1960. Dr. Reed M. Nesbitt, Ann Arbor, Mich., Pres.; Dr. W. J. Engel, 2020 E. 93rd St., Cleveland 6, Secy.

American Association of Obstetricians and Gynecologists, Hot Springs, Va., Sept. 8-10, 1960. Dr. Robert A. Ross, Chapel Hill, N. C., Pres.; Dr. Clyde L. Randall, 216 Summer St., Buffalo 22, Secy.

American Association of Plastic Surgeons, Milwaukee, May 17-20, 1960. Dr. Lyndon A. Peer, New Jersey, Pres.; Dr. Thomas D. Cronin, 6615 Travis St., Houston 25, Secy.

American Cancer Society, New York, Oct. 26-27, 1960. Dr. Warren H. Cole, Chicago, Pres.; Mr. Granville Whittlesey, 521 West 57th St., New York 19, Secy.

American College of Allergists, Miami Beach, Feb. 28-March 5, 1960. Dr. Cecil M. Kohn, Kansas City, Pres.; Mr. Eloi Bauers, 2160 Rand Tower, Minneapolis, Executive Vice-Pres.

American College of Chest Physicians, Miami Beach, Fla., June 8-12, 1960. Dr. Seymour M. Farber, San Francisco, Pres.; Mr. Murray Kornfeld, 112 E. Chestnut, Chicago 11, Executive Director.

American College of Gastroenterology, Philadelphia, Oct. 23-29, 1960. Dr. Joseph Shaiken, Milwaukee, Pres.; Mr. Daniel Weiss, 33 West 60th, New York 23, Executive Director.

American College of Obstetricians and Gynecologists, Cincinnati, April 3-6, 1960. Dr. John I. Brewer, Chicago, Pres.; Mr. Donald F. Richardson, P. O. Box 749, Chicago 90, Executive Secy.

American College of Physicians, San Francisco, April 4-8, 1960. Dr. Howard P. Lewis, Portland, Ore., Pres.; Mr. E. R. Loveland, 4200 Pine, Philadelphia 4, Secy.

American College of Radiology, New Orleans, Feb. 3-6, 1960. Dr. Lawrence Reynolds, 10 Peterboro, Detroit, Pres.; Mr. W. C. Stronach, 20 N. Wacker Dr., Chicago 6, Executive Director.

American College of Surgeons. Dr. Newell W. Philpott, Montreal, Pres.; Dr. Michael L. Mason, 40 E. Erie, Chicago 11, Secy.

American Congress of Physical Medicine and Rehabilitation, Washington, D.C., Aug. 21-26, 1960. Dr. F. J. Kottke, Minneapolis, Pres.; Dorothea C. Augustin, 30 N. Michigan Ave., Chicago 2, Executive Secy.

American Dermatological Association, Boca Raton, April 8-12, 1960. Dr. Marion B. Sulzberger, New York, Pres.; Dr. Wiley M. Sams, 25 Southeast 2nd Ave., Miami, Secy.

American Gastroenterological Association, New Orleans, March 31-April 2, 1960. Dr. H. Marvin Pollard, Ann Arbor, Pres.; Dr. Wade Volwiler, Secy., University of Washington School of Medicine, Seattle 5.

American Gynecological Society, Williamsburg, Va., May 30-June 1, 1960. Dr. Karl H. Martzloff, Portland, Pres.; Dr. A. A. Marchetti, 3800 Reservoir Rd. N.W., Washington 7, D. C., Secy.

American Heart Association, St. Louis, Oct. 21-25, 1961. Dr. A. Carlton Ernstene, Cleveland, Pres.; Mr. William F. McGlone, 44 E. 23rd, New York 10, Secy.

American Hospital Association, San Francisco, Aug. 29-Sept. 1, 1960. Dr. Russell A. Nelson, Baltimore, Md., Pres.; Dr. Edwin L. Crosby, 18 E. Division Street, Chicago, Executive Director.

American Laryngological, Rhinological, and Otological Society, Miami Beach, March 15-17, 1960. Dr. Theodore E. Walsh, St. Louis, Pres.; Dr. C. S. Nash, 708 Medical Arts Bldg., Rochester, N. Y., Secy.

American Neurological Association, Boston, June 13-15, 1959. Dr. Derek Denny-Brown, Boston, Pres.; Dr. Melvin D. Yahr, New York Neurological Institute, 710 W. 168th Street, New York 32, Secy.

American Ophthalmological Society, Colorado Springs, May 16-18, 1960. Dr. A. B. Reese, New York, Pres.; Dr. M. C. Wheeler, 30 W. 59th, New York 19, Secy.

American Orthopaedic Association, Hot Springs, Va., May 30-June 2, 1960. Dr. John Royal Moore, Philadelphia, Pres.; Dr. Lee Ramsay Straub, 535 East 70th St., New York 21, Secy.

American Pediatric Society, Swampscott, Mass., May 5-6, 1960. Dr. Samuel Z. Levine, New York, Pres.; Dr. A. C. McGuinness, Room 1036, 2800 Quebec St., N.W., Washington 8, D. C., Secy.

American Proctologic Society, Houston, April 25-27, 1960. Dr. H. R. Reichman, Salt Lake City, Pres.; Dr. Norman D. Nigro, 10 Peterboro, Detroit 1, Secy.

American Psychiatric Association, Atlantic City, N. J., May 9-13, 1960. Dr. William Malamud, New York, Pres.; Dr. C. H. Hardin Branch, 156 Westminister Ave., Salt Lake City, Secy.

American Public Health Association, San Francisco, Oct. 31-Nov. 4, 1960. Dr. Malcolm H. Merrill, Berkeley, Calif., Pres.; Dr. Berwyn F. Mattison, 1790 Broadway, New York 19, Executive Secy.

American Society of Anesthesiologists, New York, Oct. 2-7, 1960. Dr. J. Earl Remlinger, Jr., Wilmette, Ill., Pres.; Dr. Robert L. Patterson, 612 Bershire Drive, Pittsburgh 15, Secy.

American Society of Clinical Pathologists, Chicago, Sept. 24, 1960. Dr. John J. Clemmer, Albany, Pres.; Mr. Claude E. Wells, 445 Lake Shore Drive, Chicago 11, Executive Secy.

American Surgical Association, White Sulphur Springs, W. Va., April 3-6, 1960. Dr. Warren H. Cole, Chicago, Pres.; Dr. William Altemeier, Cincinnati General Hospital, Cincinnati 29, Secy.

American Urological Association, Chicago, May 16-19, 1960. Dr. William M. Coppridge, Durham, N. C., Pres.; Mr. William P. Didusch, 1120 N. Charles St., Baltimore 1, Executive Secy.

Association of American Physicians and Surgeons, St. Louis, Sept. 29-Oct. 1, 1960. Dr. Louis Wegryn, Elizabeth, N. J., Pres.; Mr. Harry E. Northam, 185 N. Wabash Ave., Chicago 1, Executive Director.

International College of Surgeons, U. S. Chapter. Dr. Edward L. Compere, Chicago, Pres.; Dr. Ross T. McIntire, 1516 Lake Shore Dr., Chicago, Executive Director.

National Tuberculosis Association, Los Angeles, May 15-20, 1960. Dr. H. McLeod Riggins, New York, Pres.; Mrs. Wallace B. White, 651 Marlborough Rd., Brooklyn, Secy.

South Central Association of Blood Banks, Albuquerque, March or April, 1960. Dr. John B. Alsever, Phoenix, Pres.; L. Ruth Guy, Ph.D., Room 1101, Stonleigh Hotel, Dallas, Secy.

Southern Psychiatric Association. Dr. J. L. Knapp, Dallas, Pres.; Dr. Richard Proctor, Winston-Salem, N. C., Secy.

Southern Surgical Association, Hot Springs, Va., Dec. 8-10, 1959. Dr. George C. Finney, Baltimore, Pres.; Dr. John D. Martin, Jr., Emory University, Ga., Secy.

Southwest Allergy Forum, Oklahoma City, April 2-5, 1960. Dr. Johnny A. Blue, Oklahoma City, Pres.; Dr. George L. Winn, Suite 104, Lister Medical Building, 430 Northwest Twelfth St., Oklahoma City, Secy.

Southwest Regional Cancer Conference. Dr. W. S. Lorimer, Jr., Fort Worth, Chm.; Mrs. Ira Frances Ball, 264 W. 11th, Fort Worth, Secy.

Southwestern Society of Nuclear Medicine, New Orleans, March 14-15, 1960. Dr. Herbert C. Allen, Jr., Houston, Pres.; Dr. J. R. Maxfield, Jr., 2711 Oak Lawn Avenue, Dallas, Secy.

Southwestern Surgical Congress, Las Vegas, Nev., March 28-31, 1960. Fort Smith, Ark., Dr. Fred H. Krock, Fort Smith, Ark., Pres.; Mary O'Leary, 813 Medical Arts Bldg., Oklahoma City, Exec. Secy.

Tri-State Medical Assembly. Dr. R. B. Langford, Shreveport, Pres.; Dr. J. W. Wilson, Jr., 940 Margaret Place, Shreveport, Secy.

United States-Mexico Border Public Health Association, Hermosillo, Sonora, Mex., April 4-8, 1960. Mr. Frank J. Von Zuben, Jr., Austin, Pres.; Dr. Jorge Román, 243 United States Court House, El Paso, Secy.

State

Texas Academy of General Practice, Dallas, Oct. 3-5, 1960. Dr. E. Sinks McLarty, Galveston, Pres.; Mr. Donald C. Jackson, 1905 N. Lamar, Austin, Executive Secy.

Texas Air-Medics Association, Fort Worth, April 9-11, 1960. Dr. W. W. Sumner, Fort Worth, Pres.; Dr. C. F. Miller, P. O. Box 1338, Waco, Secy.

Texas Association for Mental Health, Austin, Feb. 18-20, 1960. Paul Southern, Ph.D., Abilene, Pres.; Mr. John Lane, 2410 San Antonio, Austin, Executive Director.

Texas Association of Obstetricians and Gynecologists, Austin, February, 1960. Dr. Maurice Meynier, Houston, Pres.; Dr. Hugh W. Savage, 815 Fifth Ave., Fort Worth, Secy.

Texas Association of Public Health Physicians, Fort Worth, April 10, 1960. Dr. Fred K. Laurentz, Houston, Pres.; Dr. B. M. Primer, 2708 Rio Grande, Austin, Secy.

Texas Chapter, American College of Chest Physicians, Fort Worth, April 10, 1960. Dr. L. M. Shefts, San Antonio, Pres.; Dr. John W. Middleton, 900 Strand, Galveston, Secy.

Texas Chapter, American Pediatric Society, April, 1960, Fort Worth. Dr. J. T. Bennett, El Paso, Pres.; Dr. W. W. Kelton, 108 West 30th, Austin, Secy.

Texas Club of Internists. Dr. W. W. Bondurant, Jr., San Antonio, Pres.; Dr. T. Haynes Harvill, Medical Arts Building, Dallas 1, Secy.

Texas Dermatological Society, Fort Worth, April 11, 1960. Dr. Edmund N. Walsh, Fort Worth, Pres.; Dr. D. Shelton Blair, 1609 Medical Arts Building, Dallas, Secy.

Texas Diabetes Association, Fort Worth, April 10, 1960. Dr. Ralph Greenlee, Midland, Pres.; Dr. Warren W. Moorman, 901 W. Leuda, Fort Worth, Secy.

Texas Heart Association, Fort Worth, April 9-10, 1960. Dr. Robert E. Leslie, El Campo, Pres.; Mr. Ernest T. Guy, 404 Jesse H. Jones Library Building, Houston 25, Executive Director.

Texas Hospital Association, Dallas, May 10-12, 1960. Mr. F. S. Walters, Jr., Amarillo, Pres.; Mr. O. Ray Hurst, 2208 Main, Dallas, Executive Director.

Texas Industrial Medical Association, Fort Worth, April 10, 1960. Dr. Max E. Johnson, San Antonio, Pres.; Dr. J. G. Burdick, P. O. Box 472, Pasadena, Secy.

Texas Neuropsychiatric Association, Fort Worth, April 10, 1960. Dr. Hamilton Ford, Galveston, Pres.; Dr. E. Ivan Bruce, 1014 Strand, Galveston, Secy.

Texas Ophthalmological Association, Fort Worth, April 11-12, 1960. Dr. Max Baldridge, Texarkana, Pres.; Dr. James H. Scruggs, 2223 Austin Ave., Waco, Secy.

Texas Orthopedic Association, Fort Worth, April 11, 1960. Dr. David M. Cameron, El Paso, Pres.; Dr. Margaret Watkins, 3503 Fairmount, Dallas, Secy.

Texas Otolaryngological Association, Fort Worth, April 12, 1960. Dr. Herbert H. Harris, Houston, Pres.; Dr. Louis E. Adin, 3707 Gaston, Dallas, Secy.

Texas Pediatric Society, October, 1960, Dallas. Dr. Byron York, Houston, Pres.; Dr. C. E. Gilmore, 811 Bonham, Paris, Secy.

Texas Physical Medicine and Rehabilitation Society, Fort Worth, April 12, 1960. Dr. Edward M. Krusen, Dallas, Pres.; Dr. Oscar Selke, Medical Professional Building, Houston, Secy.

Texas Proctologic Society, Dallas, February, 1960. Dr. Alvin Baldwin, Dallas, Pres.; Dr. H. Gray Carter, 915 St. Joseph St., Dallas, Secy.

Texas Public Health Association, Galveston, Feb. 22-24, 1960. Mr. Tom Warren, Austin, Pres.; Mr. Joseph N. Murphy, Jr., Box 4012, Austin 51, Executive Secy.

Texas Radiological Society, Houston, January, 1960. Dr. Herman C. Sehested, Fort Worth, Pres.; Dr. R. P. O'Bannon, 1216 Pennsylvania, Fort Worth, Secy.

Texas Society of Anesthesiologists, Fort Worth, April 10, 1960. Dr. David O. Johnson, Austin, Pres.; Dr. M. T. Jenkins, Parkland Hospital, Dallas, Secy.

Texas Society of Athletic Team Physicians, Fort Worth, April 9, 1960. Dr. W. Harry Ledbetter, Wichita Falls, Pres.; Dr. Jack Brannon, 2715 Fannin, Houston, Secy.

Texas Society of Gastroenterologists and Proctologists, Fort Worth, April 10, 1960. Dr. Marcel Patterson, Galveston, Pres.; Dr. A. C. Broders, Jr., Scott and White Clinic, Temple, Secy.

Texas Society of Ophthalmology and Otolaryngology, Fort Worth, Dec. 4-5, 1959. Dr. James T. Robison, Austin, Pres.; Dr. Edwin G. Grafton, 4319 Oak Lawn, Dallas, Secy.

Texas Society of Pathologists, Inc., Fort Worth, April, 1960. Dr. Jarrett Williams, Abilene, Pres.; Dr. Sylvia Johns, 414 Navarro St., San Antonio, Secy.

Texas Society of Plastic Surgeons, Fort Worth, April 9, 1960. Dr. Willard Schussler, El Paso, Pres.; Dr. Raymond Brauer, 6615 Travis, Houston, Secy.

Texas Society on Aging. Dr. Ernest W. Keil, Temple, Pres.; Mrs. William B. Ruggles, 3701 Stratford, Dallas, Secy.-Treas.

Texas Surgical Society, Fort Worth, April 3-5, 1960. Dr. Robert Wilson Crosthwait, Waco, Pres.; Dr. G. V. Brindley, Jr., Scott and White Clinic, Temple, Secy.

Texas Traumatic Surgical Society, Fort Worth, April 10, 1960. Dr. W. D. Marrs, Fort Worth, Pres.; Dr. W. E. Crump, 1300 8th St., Wichita Falls, Secy.

Texas Tuberculosis Association, Abilene, March, 1960. Mr. Zeb Rike, McAllen, Pres.; Miss Pansy Nichols, P. O. Box 6158, Austin 21, Executive Director.

Texas Urological Society, Waco, January 23-24, 1960. Dr. William Heck, San Antonio, Pres.; Dr. Moreton A. Magid, 1525 Colcord Ave., Waco, Secy.

District

First District Society. Dr. H. D. Garrett, El Paso, Pres.; Dr. E. S. Crossett, 1501 Arizona St., El Paso, Secy.

Second District Socity, Lamesa. Dr. Oscar E. Rhode, Colorado City, Pres.; Dr. John H. Chinn, Jr., Colorado City, Secy.

Third District Society, Lubbock, 1960. Dr. Grady M. Wallace, Lubbock, Pres.; Dr. H. Fred Johnson, 2308 W. Eighth, Amarillo, Secy.

Fourth District Society, San Angelo, May 16, 1959. Dr. W. L. Smith, San Angelo, Pres.; Dr. S. Braswell Locker, 1501 11th St., Brownwood, Secy.

Fifth and Sixth Districts Society, Corpus Christi, July 8-9, 1960. Dr. John W. Chriss, Pres.; Dr. James Gabbard, 1001 Louisiana, Corpus Christi, Secy.

Seventh District Society. Dr. Robert N. Snider, Austin, Pres.; Dr. Richard Lucas, 502 W. 13, Austin, Secy.

Eighth District Society, Corpus Christi, July 8-9, 1960. Dr. M. Warren Hardwick, Angleton, Pres.; Dr. J. L. Coleman, Box 3346, Victoria, Secy.

Ninth District Society, Brenham, March 17, 1960. Dr. Haden E. McKay, Humble, Pres.; Dr. Lyman C. Blair, 1212 Rothwell, Houston, Secy.

Tenth District Society, September, 1960. Dr. Albert L. Delaney, Liberty, Pres.; Dr. Irving M. Richman, 3280 Fannin St., Beaumont, Secy.

Eleventh District Society. Dr. Ben Wilson, Tyler, Pres.; Dr. Phillip W. Taylor, 833 S. Beckham, Tyler, Secy.

Twelfth District Society, Marlin, January 12, 1960. Dr. Paul H. Mitchell, Corsicana, Pres.; Dr. J. M. Brown, Torbett Clinic, Marlin, Secy.

Thirteenth District Society, Fort Worth, Fall, 1960. Dr. Frank S. Browne, Wichita Falls, Pres.; Dr. R. D. Moreton, 1217 W. Cannon, Fort Worth, Secy.

Fifteenth District Society. Dr. Charles Wise, Naples, Pres.; Dr. George Bennett, 402 S. Bolivar, Marshall, Secy.

Clinics

Dallas Southern Clinical Society, Dallas, March 21-23, 1960. Dr. T. Haynes Harvill, Dallas, Pres.; Millard J. Heath, 433 Medical Arts Bldg., Dallas 1, Executive Officer.

International Medical Assembly of Southwest Texas, San Antonio, Jan. 25-27, 1960. Dr. Alvin O. Severance, San Antonio, Pres.; S. E. Cockrell, 202 W. French Place, San Antonio, Exec. Secy.

New Orleans Graduate Medical Assembly, New Orleans, March 7-10, 1960. Dr. Ambrose H. Storck, New Orleans, Pres.; Mrs. Irma B. Sherwood, 430 Tulane Ave., New Orleans 12, Executive Secy.

North Texas-Southern Oklahoma Fall Clinical Conference. Dr. Frank J. Lee, 1300 8th, Wichita Falls, Chm.

Oklahoma City Clinical Society Conference, Oklahoma City, Oct. 24-26, 1960. Dr. Vernon D. Cushing, Oklahoma City, Pres.; Miss Alma F. O'Donnell, 503 Medical Arts Bldg., Oklahoma City 2, Executive Secy.

Postgraduate Medical Assembly of South Texas, Houston, July 18-20, 1960. Dr. C. Alsworth Calhoun, Houston, Pres.; Mrs. W. H. Dahme, 412 Jesse H. Jones Library Bldg., Houston 25, Exec. Secy.

Board Examinations

Texas State Board of Examiners in Basic Sciences. Henry B. Hardt, Ph.D., Fort Worth, Pres.; Mrs. Betty J. Anderson, Chief Clerk, State Office Bldg., 201 E. 14th St.

EDUCATION

Postgraduate Courses

Surgery of the Cornea, New York, November 30-December 4.—A full time course of 5 days' duration will be held on surgery of the cornea, November 30-December 4 in New York. It is sponsored by the New York University Post-Graduate Medical School. The course is designed to offer thorough coverage of current concepts and practices in the field of corneal surgery. Opportunity is provided to perform surgical procedures on animal eyes. For additional information, doctors may write the Office of the Associate Dean, New York University Post-Graduate Medical School, 550 First Avenue, New York 16.

Allergy, New York, November 30-December 18.—A full time, 3 week course will be held on allergy from November 30 to December 18 at New York by the New York University-Bellevue Medical Center's Post-Graduate Medical School. Morning sessions will be devoted to laboratory instruction, while two afternoons a week are to be spent in the outpatient allergy clinic. Lectures on pediatric allergy, skin allergy, and food, mold, drug, and insect allergy will be presented. For further information, physicians may write the Associate Dean, New York University Post-Graduate Medical School, 550 First Avenue, New York 16.

Diseases of the Chest, Los Angeles, December 7-11.—The Council on Postgraduate Medical Education of the American College of Chest Physicians will sponsor a course on diseases of the chest in Los Angeles, December 7-11. The course will offer the most recent advances in the diagnosis and treatment of chest diseases—medical and surgical. Tuition for the course is $100, including round-table luncheon discussions. For further information, those interested may write the Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11.

Neuro-Ophthalmology, New York, January 18-22. A part time course on neuro-ophthalmology is being sponsored by the New York University Post-Graduate Medical School, January 18-22, in New York. It will consist of a review of the anatomy of nerve fibers, instrumental and noninstrumental perimetry, classification and significance of field defects, types of oculomotor and optic atrophy, chiasmal syndromes, and pupillary reactions. Those desiring further information may write the Office of the Associate Dean, New York University Post-Graduate Medical School, 550 First Avenue, New York 16.

Diabetes, Los Angeles, January 20-22.—The American Diabetes Association is sponsoring the eighth postgraduate course on "Diabetics and Basic Metabolic Problems," January 20-22, in Los Angeles. The following principal subjects will be covered during the sessions: fundamentals of diabetes, diagnostic and therapeutic considerations, clinical sessions in diabetes or diabetes in review, vascular complications of diabetes, and diabetes on the research frontier.

The course is open to all doctors. Fee for members of the association is $40 and for nonmembers, $75. The American Academy of General Practice will give 18 hours of category II credit for the course. Additional data and registration forms may be secured from the American Diabetes Association, 1 East 45th Street, New York 17.

Industrial Health Fellowships

Graduate fellowships in industrial medicine are being offered by the University of Cincinnati's Institute of Industrial Health. The institute, which is in the College of Medicine, provides professional training for graduates of approved medical schools who have completed at least 1 year of internship.

The 3 year program leading to the degree of doctor of industrial medicine satisfies the requirements for certification in occupational medicine by the American Board of Preventive Medicine. Intensive academic and clinical study in industrial medicine is undertaken for 2 years. A third year is spent in residency in an industrial medical department or some comparable organization. Stipends for the first 2 years vary from $3,000 to $4,000.

Two other programs of study are offered to qualified applicants. A 1 year course is available to candidates for the degree of master of science. A 3 year academic program leading to the degree of doctor of science is available to applicants who wish to teach and do research.

Requests for additional information should be addressed to the Secretary, Institute of Industrial Health, College of Medicine, Eden and Bethesda Avenues, Cincinnati 19, Ohio.

San Antonio Medical School Depends upon Voters

The University of Texas regents approved for the site of the third Texas medical school 170 acres of land in San Antonio just off Fredericksburg Road near the Oak Hills Country Club adjacent to the proposed new city-county hospital.

The next step will be for the taxpayers to vote on money for the new hospital in order that the school can be built.

The regents approved the site for the school upon the recommendations made by a survey team of three out-of-state doctors. The team recommended construction of a new 500-bed city-county hospital at a cost of $13,000,000 as a teaching hospital.

The bill approved by the Legislature last spring stipulates the medical school must be within a mile of a teaching hospital, provided for and maintained without cost to the state. Ruling out a downtown location near Robert B. Green Hospital, the team recommended the Oak Hills site, contingent upon a community commitment to build the new hospital.

The team's report presented at the meeting with the regents also includes the following:

1. Converting the present day Robert B. Green Hospital to a chronic hospital when a new city-county institution has been opened at the Oak Hills site.
2. Securing the city and county assurance of rerouting and scheduling of surface transportation to meet needs of a new medical center.
3. Starting medical classes with 50 students with an increase as more teaching beds are added.

The survey also calls for state expenditures of $13,000,000 to $14,000,000 to build the first phase of the medical school, and a minimum annual operating budget of $2,000,000 for 4 classes of 50 medical students.

There is a move under way by a faction opposing the Oak Hills area for a medical school to seek urban renewal land near the Robert B. Green Hospital as a school site. If the land can be obtained, then the regents will be asked to reconsider their decision. If that plan should become reality, then it would be more feasible of course to put the society's new building in the downtown locations. The doctors could decide on one of the three downtown locations.

University of Texas Medical Branch

Two members of the University of Texas Medical Branch in Galveston, *Dr. James V. Warren* and *Dr. James J. Leonard,* have received a grant of $20,000 for the Maco Stewart Cardiovascular Research Laboratory, and a supplementary grant of $16,000 from the National Heart Association to be used over a period of 5 years.

Dr. Truman G. Blocker, Jr., professor of plastic and maxillofacial surgery at the Medical Branch, Galveston, as president presided at the American Association for the Surgery of Trauma meeting at Bretton Woods, N. H., September 22-26. As a member of the Steering Committee, Advisory Panel on Medical Sciences (Research and Engineering) of the American Society of Plastic and Reconstruction Surgery, Dr. Blocker visited Patrick Air Force Base at Cape Canaveral, Fla., October 29-30.

Dr. William J. McGanity was appointed professor and chairman of the Department of Obstetrics and Gynecology of the University of Texas Medical Branch in Galveston, effective January 1, 1960. He has been visiting professor of obstetrics and gynecology since September 1.

Professor U. F. von Euler of Stockholm will be the first lecturer for the academic year 1959-1960 at the medical branch under the auspices of the Harris and Eliza Kempner Fund and the Daniel W. Kempner Visiting Professorship. Professor von Euler of the Fysiologiska Institution of the Karolinska Institute, Stockholm, will be in Galveston from November 30 to December 2.

Merck Memorial Loan Fund Available to Interns, Residents

A $400,000 George W. Merck Memorial Loan Fund has been established by the Merck Company Foundation to assist interns and residents to seek the best possible post-graduate training in teaching hospitals before entering practice. It is estimated that 60 to 100 young doctors will benefit each year from the fund.

Graduates of the three Texas medical schools are eligible for loans if they take the internship or residency at any of the 48 teaching hospitals affiliated with the 18 medical schools participating. The schools participating are associated with the following universities: Boston, California, Chicago, Columbia, Cornell, Harvard, Illinois, Johns Hopkins, New York, Northwestern, Pennsylvania, St. Louis, Tufts, Vanderbilt, Vermont, Virginia, Washington (St. Louis), and Yale.

The Merck Company Foundation will allocate the $400,000 over a period of 8 years, by which time the Memorial Fund is expected to become self-sustaining. Administration of the fund will be by the deans of the medical schools, who will have complete freedom in the selection of recipients, the amount of each loan, and the term of its repayment.

For further information, those interested may write the Merck Company Foundation, John S. Edmonston, Manager of Press Relations, Rahway, N. J.

Education-Career Guidance Program Offered in Engineering-Science

The Junior Engineers' and Scientists' Summer Institute (Jessi), a 2 week education-career guidance program, will be held in June at eight colleges and universities in the United States. It is sponsored by the Scientists of Tomorrow Corporation and industries and organizations in many of the states, including Texas.

The institute is for boys and girls entering the eleventh or twelfth grade in September, 1960, who have successfully pursued at least three courses (by the end of the tenth grade) to four courses (by the end of the eleventh grade) of high school mathematics and/or science.

JESSI is an effort to broaden the students' horizons so that when decisions are made about college program and career they are made with intelligence. In the 5 daily hours of classroom time, faculty members go over all the programs in engineering and science. The students are told what the courses encompass, what study demands will be made by each, and what courses should be taken in the final years of high school to be of greatest value.

The actual cost of the 2 week program is about $120 for each student. Tuition fee, however, is set below $100 for those who can pay it all and is waived for those with no money. Financial support is needed for scholarships so bright students without money will not be barred.

Texas doctors are asked to encourage youngsters interested in science or engineering to attend one of the insti-

tutes, which will be held at Clemson Agricultural College, New Mexico College of Agriculture and Mechanical Arts, Brigham Young University, Kansas State College, Montana State College, North Dakota Agricultural College, Oregon State College and New York University.

Those desiring further information on the institutes may write Stanley H. Shirk, Executive Director, Scientists of Tomorrow, 114 Sylvan Building, Portland 1, Ore.

DRUG NOTES

Renacidin Used to Reduce Renal and Bladder Calculi

RENACIDIN (Guardian Chemical Corporation) is suggested for use in reducing the size of ureteral, renal, and bladder calculi the composition of which is primarily calcium carbonate and/or calcium phosphate. It may be useful also in preventing the calcification of indwelling catheters draining the urinary tract; in softening large vesical calculi to assist in subsequent crushing; in the treatment of alkaline encrusted cystitis; in removing phosphate slough after fulguration; and in calcification of the prostatic fossa after prostatectomy.

Calculi of oxalate-phosphate composition dissolve more slowly than ones of carbonate phosphate alone, but many of these become soft and porous and can later be crushed. Pure cholesterol and uric acid or dense oxalates are relatively insoluble in Renacidin in the strengths usually used.

Renacidin is available in bottles of 300 Gm. The sterile powdered mixture is composed of the lactones, acids, acid salts, and esters of gluconic, citric, and malic acids. For use it is usually made up 7 per cent to 10 per cent in sterile distilled water. The solution is used by irrigation preferably by slow continuous drip of about 2 to 3 ml. per minute. The solution is said to be nonirritating and nontoxic.

The action of Renacidin is that of sequestration. Chemically sequestration is the property of decreasing the concentration of a multivalent positive ion by its reaction with a negative ion or a receptive molecule to form a soluble complex ion. The sequestering action in this case is with the calcium ion. However, sequestration also may occur with cupric, ferrous, and ferric ions and others. Commonly used negative ions or molecules are citrate or citric acid, glycerin, and sucrose.

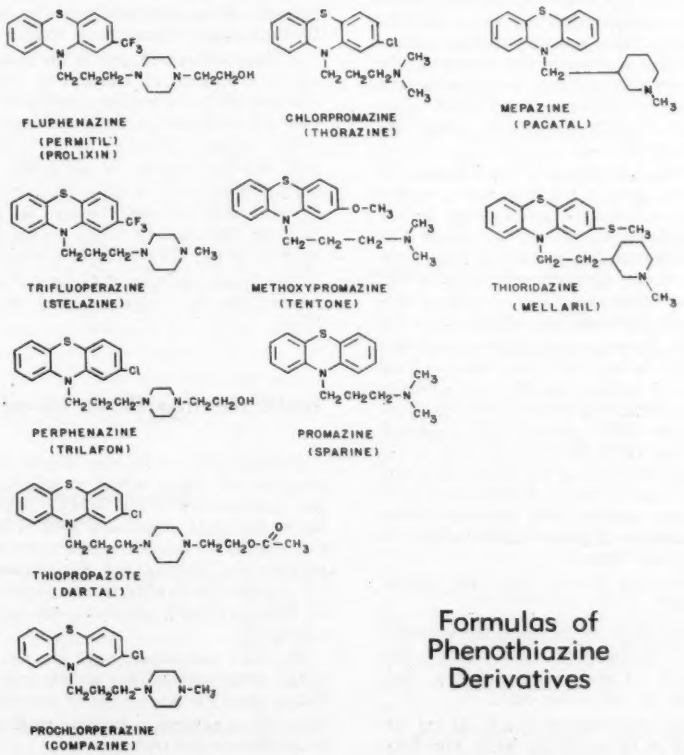
Gluconic acid is an oxidation product of glucose and both citric and malic acids occur in fruits.

QUINAGLUTE (Wynn Pharmacal Corporation) is an injectable form of quinidine for use in cardiac arrhythmias, especially in instances where the oral route is precluded or when rapid therapeutic effect must be obtained.

Quinaglute is quinidine gluconate, 0.08 Gm. per milliliter along with 1 per cent of monothioglycerol as an antioxidant and .25 per cent phenol.

Intramuscular and intravenous dosage, contraindications, and side effects are detailed in the comprehensive literature accompanying each 10 ml. multiple dose vial. Quinidine gluconate corresponds to 63.3 per cent of anhydrous quinidine. Its advantages are said to be greater solubility and minimal local reaction.

TRIOPRON or iothyropropic acid (Warner-Chilcott) is an interesting drug which is still under clinical investigation and not yet available. It can be thought of as de-



Formulas of Phenothiazine Derivatives

aminated triiodothyronine. (Cytomel, Smith, Kline and French, is the levo-isomer of triiodothyronine.) Triopron has cholesterol lowering properties; it is said to be of value in myxedema, early cretinism, fatigue, habitual abortion, obesity, and other signs and symptoms of hypothyroidism. It has about one-tenth the calorigenic activity of thyroxin and about 300 times its effect on the metamorphosis of the tadpole. Triopron has about one-fourth the antigoitrogenic activity of thyroxin, whereas 1-triiodothyronine is about eight times as active as thyroxin in this area and about eight times as strong in calorigenic activity.

Preliminary data suggest that triiodothyropropionic acid (Triopron) administered during 2 or 3 months can lower elevated serum cholesterol levels to near normal limits. This is accomplished without a substantial increase in the metabolic rate. One patient receiving 6 mg. of the drug daily for 9 weeks experienced a reduction to 49.9 per cent of the pretreatment level.

The dosage schedule followed in hypercholesterolemia is 1 mg. daily for 2 weeks. Then, depending on the clinical response, the dose is increased stepwise by 1 mg. daily every 1 or 2 weeks. The average daily dose for optimum effect on blood cholesterol has been 3 mg. In certain cases larger doses were needed. Up to 20 mg. daily have been given without observing toxicity.

The initial dose in myxedema and severe heart disease should be 0.5 mg. daily. Continuing therapy is needed to maintain low cholesterol levels since withdrawal of the drug causes a return to pretreatment levels.

No serious side effects or toxic reactions have been observed thus far in the clinical trials.

PERMITIL (White Laboratories) and PROLIXIN (Squibb) each contain fluphenazine dihydrochloride. Literature discussing Permitil points out that differences in the potency of the various phenothiazine derivatives are due to chemical alterations of the molecule. Also, it says that these phenothiazines act in varying degree on subcortical areas of the brain. Some produce sedation and hypnotic potentiation, some have side effects such as constipation or blurred vision, and some are antiemetics. A group of these are summarized in the accompanying formulas.

Attempts are made through structural modification to increase the potency of an agent in the hope that a smaller but more effective dose will not be accompanied by the side effects that are usually associated with the larger dose of the less potent drugs. Permitil is claimed to permit the lowest effective dosage of any antianxiety agent (.25 mg. twice daily). Thus, dose related side effects of other phenothiazines should occur less frequently or not at all.

Advantages claimed for Permitil are a low order of side reactions, a rapid onset of action with long duration, and alleviation of symptoms of tension, anxiety, and agitation without depressant effect. Permitil is aimed at the emotional stress common in everyday office practice. The suggested adult dose is one 0.25 mg. tablet twice a day with up to two 0.25 mg. tablets twice daily, using the lowest dose that will produce the desired clinical effect. A maximum of 2 mg. daily may be given to patients with relatively severe symptoms. Permitil is supplied as green colored tablets of 0.25 mg. in bottles of 50 and 500.

Prolixin is supplied in 1 mg., 2.5 mg., and 5 mg. tablets in bottles of 50 and 500.

Prolixin is aimed at the more severe cases, the hospitalized psychotic patients, institutionalized senile patients, discharged psychotic patients on maintenance therapy, and mental patients treated on an out-patient basis.

The dose for adult psychotic patients is 2.5 mg. to 10 mg. daily, to be adjusted on an individual basis. The dose is increased until the desired effects are obtained and then reduced to maintenance levels of about 1 mg. to 5 mg. daily. The dose may be given all at once or divided and given every 12 hours. It is suggested that caution be used with doses greater than 20 mg. daily.

The dose for geriatric patients is smaller. An initial daily dose of 1 to 2.5 mg. is suggested.

Contraindications, as with many other phenothiazines, are in comatose states resulting from central nervous system depressants. The drug is to be used with caution when a history of convulsive disorders is present. Routine blood counts should be made and the patient instructed to report soreness of the gums, mouth, and throat or symptoms of upper respiratory infection.

Side effects include jitteriness, insomnia, dizziness, fatigue, flushing, perspiration, polyuria, edema, nasal congestion, lethargy, blurring of vision, and depression. These may be eliminated by reduction of dosage or by withdrawal. Hypotension and dermatitis may occur in some instances. Also, certain extrapyramidal symptoms may be observed.

—HERBERT SCHWARTZ, M.S., Austin.

MEDICAL MEETINGS

Dr. McLarty Becomes President Of Academy of General Practice

Dr. E. Sinks McLarty of Galveston became president of the Texas Academy of General Practice during its annual meeting held October 4-7 in Galveston. Dr. Jack Partain, San Antonio, was named president-elect, and Dr. E. W. Schmidt, Pecos, vice-president. Dr. Lawrence W. Johnson, Houston, was reelected treasurer.

A proposed amendment to the bylaws which would have set up a congress of delegates to govern the academy was defeated, so that a general meeting of the membership each year will continue to guide the organization.

The board of directors of the academy voted to pursue plans for participation in the annual session of the Texas Medical Association as many other specialty groups do. The directors also expressed interest in office space should a building for housing allied organizations ever be constructed by the Texas Medical Association.

The Texas Academy of General Practice has set its next meeting for the Adolphus Hotel in Dallas, October 3-5, 1960.

WMA Meeting Shows Unrest

Dissatisfaction with the World Medical Association's program and unrest within its administrative staff brought two developments at the WMA's thirteenth general assembly at Montreal, September 7-12. The association adopted a resolution to appoint a committee to study the WMA's program and staffing, and to recommend ways to increase the organization's effectiveness. Resignation of Dr. John M. Bishop, recently appointed deputy secretary-general, was announced.

The two associations were among groups hinting that WMA affairs and policies are too greatly dominated by the United States. At one session, it was claimed that the WMA is not doing enough to improve medical care and standards in underdeveloped countries.

International Medical Assembly To Feature 16 Guest Speakers

Sixteen guest speakers in 14 fields will be on hand for the twenty-fourth annual meeting of the International Medical Assembly of Southwest Texas, January 25-27, in San Antonio.

Among the guest speakers and their topics will be Dr. William Middleton, Washington, D. C., "Your Cardiac Patient—Some Physiologic and Clinical Considerations in Prognosis and Treatment"; Dr. Alexander S. Nadas, Boston, "Transposition of the Great Arteries in Infants and Children; Clinical and Physiologic Correlations"; Dr. Robert W. Buxton, Baltimore, "Massive Gastrointestinal Bleeding"; Dr. John M. Waugh, Rochester, Minn., "Surgical Aspects of Pancreatitis"; Dr. Leopold G. Koss, New York, "Diagnosis of Cancer in Body Fluids"; Dr. Herbert E. Schmitz, Chicago, "Management of the Terminal Cancer Patient"; Dr. John D. Reeves, Gainesville, Fla., "Clinical and Diagnostic Use of Radioisotopes"; Dr. Harold Rosen, Baltimore, "Indications and Contraindications for Hypnosis"; Dr. Laurence Kinsell, Oakland, Calif., "Dietary Polyunsaturated Fat and Arteriosclerosis"; and Dr. Russell N. DeJong, Ann Arbor, Mich., "Intermittent Cerebrovascular Insufficiency."

Other speakers will be Col. Harvey C. Slocum, MC, Washington, D. C.; Dr. Louis A. Brunsting, Rochester, Minn.; Dr. Bernardo Sepulveda, Mexico City; Dr. Louis G. Welt, Chapel Hill, N. C.; and Dr. Wilfred G. Bigelow, Toronto, Canada.

Two one day seminars will be featured during the two days preceding the assembly. On Saturday, January 23, the seminar will be entitled, "Glaucoma," with Dr. Peter G. Kronfeld, Chicago, the headliner, and on Sunday, January 24, "The Physician's Role in the Diagnosis and Treatment of Alcoholism," with Dr. Marvin A. Block, Buffalo, N. Y., the headliner. Sponsor of the seminars is the Postgraduate School of Medicine of the University of Texas.

In addition to the scientific program, other activities will include a hospitality room which will be open from Sunday noon, January 24, through Tuesday noon, January 26; a dinner dance Monday evening, January 25, which was changed from a frontier party on Tuesday evening last year; a brunch and style show, Tuesday morning, January 26; and a refreshment and friendship party, Tuesday evening, January 26, at the San Antonio Country Club, which was held on Monday evening last year. There will be a golf tournament and cocktail buffet, Wednesday afternoon, January 27. There will be a golf tournament for both physicians and their wives. All physicians are invited to the cocktail party whether or not they play golf.

For additional information, those interested may write S. E. Cockrell, Executive Secretary, Bexar County Medical Society, 202 West French Place, San Antonio 12.

Dr. Crosthwait Becomes President Of Texas Surgical Society

Dr. Robert Wilson Crosthwait of Waco became president of the Texas Surgical Society at its meeting held in Houston, October 4-6. Other officers include Dr. Robert B. Homan, Jr., El Paso, first vice-president; Dr. Thomas D. Cronin, Houston, second vice-president; Dr. G. Valter Brindley, Jr., Temple, secretary; Dr. Robert L. Sewell, Fort Worth, treasurer.

The next meeting of the society is planned for April 3-5, 1960, in Fort Worth.

Members of the society who appeared on the program include Dr. Raleigh R. Ross, Austin; Dr. Willard C. Sellman, Jr., Dallas; Dr. Robert S. Sparkman, Dallas; Dr. J. Warner Duckett, Dallas; Dr. John L. Kee, Dallas; Dr. Edgar J. Poth, Galveston; Dr. John B. Patterson, Fort Worth; Dr. Hanes H. Brindley, Temple; Dr. Jesse E. Thompson, Dallas; Dr. James Allen Chamberlin, Houston; Dr. John J. Hinchey, San Antonio; Dr. Phillip L. Day, San Antonio; Dr. Jack G. Kerr, Dallas; Dr. Truman G. Blocker, Jr., Galveston; Dr. Harry M. Spence, Dallas; and Dr. Carl A. Kunath, San Angelo.

Among the subjects discussed at the meeting were "Esophageal Hernia in the Infant," "Identical Twin Homografting; Case Report," "Lesions and Use of the Fibula," "Some Aspects of Pancreatic Surgery," "Surgical Treatment of Bullous Emphysema," "Massive Upper Gastrointestinal Bleeding," "Treatment of Fractures of the Neck of the Femur," "Observations of Surgery in Russia," and "Primary Sclerosing Cholangitis."

Texas Society on Aging Sponsors Conference in Dallas

The third annual meeting of the Texas Society on Aging was staged October 16-17 in Dallas.

Among the topics discussed were "Full Employment in an Expanding Economy—Implications for Older People," "Preparation for Aging," "Housing for the Aged," "Recent Developments in Health Care Programs for Older People," "Voluntary Homes for the Aged," and "What Lies Ahead for Texas This Coming Year."

Among the Texas physicians on the program were Dr. Normabelle Conroy, San Antonio; Dr. Wendell D. Gingrich, Galveston; Dr. Elizabeth Thomason, Corpus Christi; Dr. Hall Shannon, Dallas; Dr. Russell Deter, El Paso; Dr. R. L. Stubblefield, Dallas; Dr. Milford O. Rouse, Dallas; and Dr. Hobart O. Deaton, Fort Worth.

New officers of the society include Dr. Hiram J. Friedsam, Denton, president-elect; Dr. Ozro T. Woods, Dallas, vice-president; and Mrs. William B. Ruggles, Dallas, secretary-treasurer. Dr. Ernest W. Keil, Temple, became president.

MEDICOLEGAL NOTES

Physicians Should Be Careful Referring Patients to Non M.D.'s

The practice of some physicians in referring patients to various individuals, not licensed to practice medicine, for varying specific phases of therapy such as physical therapy and psychotherapy has become more frequently evident and more a subject of inquiry.

While no one questions the need for these persons in performing their specialized functions in the over-all health team, it must not be forgotten that they, regardless of their training and experience, are not licensed to practice medicine. As a consequence, certain legal restrictions must be observed and complied with and the physician must understand and be aware of his legal obligations, responsibilities, and position when these nonlicensed persons are called upon to aid the physician in the care and treatment of his patient.

I feel at this point that it would be helpful if we note the definition of the practice of medicine as set forth in

the Medical Practice Act of Texas. Such provision is set forth as follows:

> Any person shall be regarded as practicing medicine within the meaning of this law: (1) Who shall publicly profess to be a physician or surgeon and shall diagnose, treat, or offer to treat, any disease or disorder, mental or physical, or any physical deformity or injury, by any system or method, or to effect cures thereof; (2) or who shall diagnose, treat or offer to treat *any disease or disorder, mental or physical or any physical deformity or injury by any system or method and* to effect cures thereof and *charge therefor,* directly or indirectly, money or other compensation . . . (Art. 4510, V.A.C.S.—emphasis supplied).

As is readily apparent, the definition contained in the Medical Practice Act of Texas of what constitutes the practice of medicine is broad and without question, would cover many of the activities of these nonlicensed physical therapists, psychologists, laboratories, and so forth who are often operating in an ancillary capacity with the physician. This, of course, immediately raises the question of how many of these nonlicensed persons can continue their activities at the present time and still not be held to be in violation of the Medical Practice Act for the unauthorized or illegal practice of medicine.

It has long been recognized by the courts that many activities customarily performed by nonlicensed individuals would fall within the broad definitions of the practice of medicine. As a result they would be in violation of the law if these activities were performed in the absence of supervision and direction by a physician licensed to practice medicine. So long, however, as these activities constituting the practice of medicine are performed under the direction and supervision of a licensed physician who is, in turn, both legally and professionally responsible for the care and treatment of the patient, no violation is presented.

It then becomes obvious that the matter of prime consideration in determining whether or not certain activities of these nonlicensed persons are in violation of the law is whether or not their activities are under the control, direction, and supervision of a licensed physician. If control, direction, and supervision are asserted by the physician, no legal implications for the illegal practice of medicine are present. But, if such control, direction, and supervision are lacking, the activities may well be illegal.

A unique situation is presented should a physician refer a patient to a nonlicensed person, such as a psychologist or physical therapist, for treatment and then relinquish control, direction, and supervision over the care, treatment, and activities rendered the patient by such psychologist or physical therapist. Such a situation gives rise to two serious legal implications.

First, the question is raised as to what legal complication can result from a licensed physician referring a patient to a nonlicensed individual for treatment or care which constitutes the practice of medicine and over which the physician exercises no control or supervision. Although such a question to date has never been before our courts, it is possible that such action on the part of the physician might well be considered a violation of Article 4505 of the Medical Practice Act for which a physician may have his license cancelled, revoked, or suspended by virtue of the provisions of Article 4506. To see how these activities could result in a violation of the Medical Practice Act, let us look at subsections 5 and 12 of Article 4505, which set forth two grounds for which a physician may have his license to practice medicine cancelled, revoked, or suspended:

> (5) The violation, or attempted violation, direct or indirect, of any of the provisions of this Act, either as a principal, accessory, or accomplice. . . .
>
> (12) The impersonation of a licensed practitioner, or permitting, or allowing, another to use his license, or certificate to practice medicine in this State, for the purpose of treating, or offering to treat, sick, injured or afflicted human beings.

The referring of a patient as described above could easily be in violation of subsection 5 in that the referring physician would be aiding or abetting in a violation of the Medical Practice Act by knowingly referring a patient for medical treatment to one who is not licensed to practice medicine. Also, this practice might well be held to be a violation of subsection 12 as, in effect, it would be a method (by referral) of allowing one not licensed to practice medicine to use the physician's license to practice medicine.

Aside from possible violations of the Medical Practice Act and the jeopardy that such violations could have upon the physician's license to practice medicine, there is also a definite danger from a civil liability standpoint. Let us assume, as an example, a case in which a physician refers a patient to a psychologist or physical therapist for care which clearly falls within the definition of the practice of medicine. The physician exercises no control or supervision over the activities of the psychologist or physical therapist. Subsequently, through either lack of knowledge or merely because of negligence on the part of the physical therapist or psychologist, the patient suffers an injury. The patient sues the referring physician for damages for the injuries he has suffered.

In my opinion, there are several grounds upon which a patient may well be able to substantiate the allegations of negligence against the physician.

First, the patient might contend successfully that the physician owed a legal obligation to refer him to a person qualified to care for him and treat his condition. If this necessitated the practice of medicine and the physician referred the patient to one not licensed to practice medicine, this might well be sufficient grounds to prove the physician had been negligent in his selection of the individual to whom the patient should be referred. This would be especially true if the referring physician or no other physician exercised control and supervision over the activities of the psychologist or physical therapist to whom the patient has been referred.

Second, if after referring the patient to a nonlicensed individual, the physician exercises no control, direction, or supervision over the care and treatment of the patient and the patient suffers injury as a result of this lack of care on the part of the physician, it may well constitute sufficient grounds for a malpractice suit against the physician for "abandonment" of the patient. It is easily conceivable that the referring of a patient to a nonlicensed person over whom no control or supervision is exercised for further or additional treatment would amount to "abandoning" the patient if the care and treatment was of a medical nature.

There are serious hazards in the referring of patients to nonlicensed individuals from both the standpoint of a violation of the Medical Practice Act and possible civil liability should injury result to the patient. Consequently, I believe that all physicians should be exceedingly careful in their referral of patients to nonlicensed persons. They should do so only when such nonlicensed individuals are under the control, direction, and supervision of either the referring physician or a physician licensed to practice medicine by the Texas State Board of Medical Examiners.

—PHILIP R. OVERTON, LL.B., Austin.

H. B. 4700 to Be Pushed Predicts U. S. Chamber of Commerce

The United States Chamber of Commerce and two key Congressmen, all opponents of H. B. 4700 (the bill which Congressman Aime Forand of Rhode Island introduced), recently issued separate warnings that an all out effort will be made to get the bill through Congress next year.

The chamber predicted that there will be a powerful attempt in the next session of Congress to enact the bill, which would increase social security taxes to help pay for the cost of the federal government providing surgical and hospital care for social security beneficiaries.

Passage of the legislation would mark "a major breakthrough into the welfare state," according to the chamber. It "probably would lead to a compulsory Federal program providing complete medical care for everyone," the chamber said. It further commented that there will be no stopping of such a program once it gets started.

The chamber called upon communities to find orderly solutions to the problems of aging. Otherwise, solutions will be imposed from Washington, it reported.

Similar warnings were voiced by Representatives Richard M. Simpson of Pennsylvania and Thomas B. Curtis of Missouri, key members of the House Ways and Means Committee where the bill was put on the shelf last session.

Representative Curtis urged that the medical profession and other leading opponents make a strong counter drive in an all out effort to block passage of the bill next session. Unless there is such action, he said that he regretfully would have to predict that legislation along the lines of the pending bill probably will be enacted in 1960.

Representative Simpson said that H.B. 4700 and similar legislation affecting the medical profession, "make it imperative that every doctor keep informed on legislative issues before Congress." He also urged that physicians "become patriotic political forces" by giving their "informed viewpoint" to lawmakers at all levels of government.

Representative Simpson said that it is important that opponents of the Forand bill develop appropriate alternatives to solve the health care needs of the aged. He promised to continue to cooperate with the medical profession to guard against the disastrous consequences of compulsory national health insurance.

OF GENERAL INTEREST

Personals

Dr. Allen T. Stewart of Lubbock is quoted at some length in the message of the President of the Woman's Auxiliary to the American Medical Association appearing in the September issue of the Auxiliary's *Bulletin*. Mrs. Frank Gastineau of Indianapolis calls attention to a speech made when Dr. Stewart was President of the Texas Medical Association in which he asked: "What are doctors doing about the things that are happening?" He urged affirmative replies to these questions: "First, can we truthfully say we are completely informed on what is going on? Second, do we make our knowledge known? Third, do we act? Fourth, do we lead? Finally, do we help to pay the freight for collective action today? Do we support, without grumbling, the programs of our associations and profession?

Dr. Marc J. Musser, director of professional services at the Houston Veterans Administration Hospital, has been appointed director of medical research for the Veterans Administration in Washington, D. C. He will coordinate a nationwide program of some 6,000 individual and cooperative studies.

Several Texas physicians participated in the second annual Texas conference on the utilization of atomic energy, held at the Texas Agricultural and Mechanical College, at College Station, November 12-13. Speakers included *Dr. H. G. Gerstner*, Department of Radiation Biology, School of Aviation Medicine, Randolph Air Force Base, who spoke on "Clinical Effects of Ionizing Radiation," and *Dr. Abel Leader*, Houston, "Experiences with Radioisotope Therapy in Prostatic Diseases."

Dr. Griff T. Ross, Enterprise, now serving a fellowship in medicine at the Mayo Foundation at Rochester, Minn., was one of three recipients of the annual award of the Alumni Association of the Mayo Foundation at the thirty-fifth meeting of the organization in Rochester, October 8-10. Dr. Ross was given the award for "research and new technics on the isolation of individual cells of the normal pituitary body to allow quantitative studies of these cells."

Participating in the Louisiana Academy of General Practice program in Baton Rouge, October 20-22, was *Dr. Carl A. Nau, Jr.*, Galveston, and *Dr. Vincent P. Collins*, Houston.

Dr. R. Lee Clark, Jr., Houston, was installed as president of the Alumni Association of the Mayo Foundation for Medical Education and Research, October 8, in Rochester, Minn., at the annual meeting of the association.

Mrs. Paul Kimbro, the mother of *Dr. R. W. Kimbro*, chairman of the Texas Medical Association's Board of Trustees, died in Cleburne, her home, October 18.

Recent births include a son, David Bruce Engler, for *Dr. Joseph T. Engler* and his wife, born August 28 in Houston, and a son, Craig Allen, for *Dr. James Phillips* and his wife, born September 5 in Grand Prairie.

Americans Becoming Complacent In Fighting Tuberculosis

It's been said that some folks get too much of a good thing for their own welfare. Americans have gotten tuberculosis so well controlled, comparatively speaking, that their own complacency is damaging their own welfare, according to the Texas Tuberculosis Association.

Compared to tuberculosis conditions in the United States 20 years ago, we are well off. However, tuberculosis is still a number 1 killer around the globe. But in the United States, we have enough hospital beds to go around, potent drugs, and well trained doctors. We know how to protect people from tuberculosis, according to the association.

"But," one might ask, "Why is there too much tuberculosis for our own good?" The answer is—Americans are no longer afraid of tuberculosis, say officials of the association.

Yet—An American develops tuberculosis each 6 minutes.
An American dies of tuberculosis each 45 minutes.
An estimated 400,000 Americans must be under medical attention the rest of their lives because of tuberculosis.
The tax payers spend $75,000,000 each year in tuberculosis control.

The tuberculosis battle will not be over if Americans stop fighting the disease before it is completely routed, before they find a tuberculosis vaccine, and before they find a drug which will completely and safely kill the germ.

Christmas seals—and the tuberculosis associations the seals support—raise funds to finance the continuing battle to alert the public to tuberculosis facts, to provide research to

Help Fight TB

Use Christmas Seals

combat the disease, and to provide help for rehabilitating former patients. Doctors are asked once again to support the Christmas seal campaign and help the fight against tuberculosis.

Correction: Information to Hospitals

Developments in hospital planning, financing, design, and construction will be reported by the American Hospital Association in an abstract service available to anyone interested at $10 per year. The new service will provide bibliographical references and abstracts of pertinent articles, books, pamphlets, or reports on index cards to be distributed six times a year. Those interested may write the association at 840 North Lake Shore Drive, Chicago 11.

The hospital planning abstract service was credited inadvertently to the American Medical Association in a story appearing on page 781 of the September *Journal,* which also inferred that the service is available to only a limited group.

New Children's Hospital In Baylor Medical Center

Dedication ceremonies of the $4,500,000 Women and Children's Hospital, newest addition to the facilities of the Baylor University Medical Center in Dallas, were held October 22.

Open house was held October 22 for Baylor employees and their families, workers on the building and their families, members of the woman's auxiliary, voluntary workers, and students. Trustees of the medical center were hosts to an open house for members of the medical staff and their families on October 23. Also included were residents and interns and their families.

The public had its first glimpse of the new Women and Children's Hospital October 24-25. Trustees of the medical center were hosts at an open house at which time guided tours were held.

The first new patients were to be admitted to the hospital on October 28. On the same date all maternity patients and children in Baylor's Pediatric Division in the former Maternity Division of Baylor were moved into the new Women and Children's Hospital.

The new hospital contains 196,000 square feet and two wings of 7 stories each, plus a full basement and 2 story machinery penthouse. The building's unusual features include fingertip control of patient services, personal wardrobe space, Norwegian rose marble columns, and music in elevators.

A bedside unit developed at Baylor will provide the patient with multiple services at his fingertips. The service panel permits the patient to control television, select from five radio channels, piped in music, or chapel services. New fathers will receive special attention in Dad's Den, a room especially designed for fathers-to-be where they can watch television, drink coffee, and pace the floor.

Visitors at the open house received a souvenir book containing a brief history of the institution plus a dedication booklet giving a factual photographic description of some of the outstanding features of the new hospital.

From a humble beginning in 1903, Baylor University Medical Center has become the largest Baptist hospital in the world and one of the outstanding hospitals in the nation. A group of prominent Dallas citizens gathered at a banquet in 1903, when Dr. George W. Truett, pastor of the First Baptist Church in Dallas, was speaker. He told the people present that it was time to begin the erection of a great humanitarian hospital, one to which men of all creeds and those of none may come with equal confidence. The following year the first spade of earth was turned at the building site for the Texas Baptist Memorial Sanitarium.

The new $4,500,000 Women's and Children's Hospital of Baylor University Medical Center was dedicated October 22 and the first patients were admitted October 28.

On April 16, 1959, at a meeting of the Board of Trustees of Baylor University, the name of Baylor University Hospital was changed to Baylor University Medical Center, the fourth name change in its history. Formerly the center was named Baylor University Hospital. The name was changed since it no longer described the several hospitals, departments, and schools represented on the Dallas campus. The medical center now is composed of three hospitals: George W. Truett Medical and Surgical Hospital, Women and Children's Hospital, and the Minnie S. Veal Teaching and Research Hospital. Originally the hospital was named the Texas Baptist Memorial Sanitarium. In 1920, the name became the Baylor Hospital; in 1936, the name was changed to the Baylor University Hospital.

Third Set of U. S. Quints Born in San Antonio

The third set of quintuplets ever born in the United States and the first in 45 years were born to an Air Force lieutenant's wife, Mrs. Charles G. Hannan, at Lackland Air Force Base Hospital in San Antonio, October 20, only all to die within the following night. The couple are natives of Taylor.

The all girl quintuplets were the first ever born in the United States. Theirs was the first multiple birth of five diagnosed beforehand by x-ray. Had the Hannan girls lived, they would have been the third set of quintuplets in the world to survive.

In 1896, Elizabeth Lyon of Kevil, Ky., gave birth to five boys who survived from 4 to 13 days. In 1914, a mother in Taylorsville, Ky., her name unrecorded, also had five boys, all of whom died within a few days.

Mrs. Hannan began having contractions at 11 a. m. The Hannan babies were delivered within a 12 minute period in assembly line fashion by a team of 10 Air Force doctors and half a dozen nurses. Heading the delivery team was Lt. Col. Charles E. Gibbs, Chief of the Department of Obstetrics and Gynecology at Lackland Hospital. The doctors were amazed all babies were born alive since the mother was only in her twenty-seventh week of pregnancy.

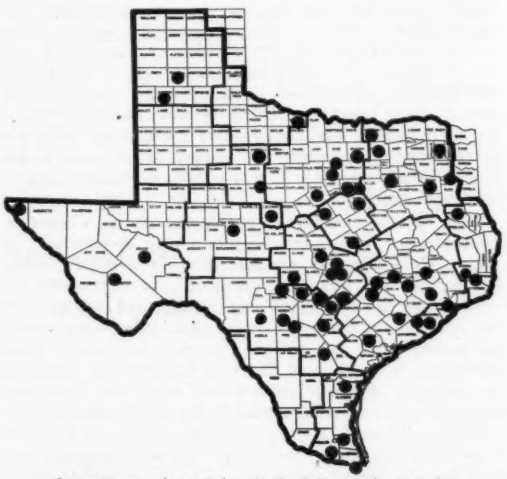
The babies were designated as Baby A, B, C, D, and E. Baby B died first at 5:40 p.m., a little more than 5 hours after birth; Baby A died 30 minutes later; Baby E at 9:25 p. m.; and Baby C at 10 p. m. The hardiest of the little girls, Baby D, lived 18 hours and 9 minutes, dying at 6:40 a.m.

According to medical records, quintuplets occur once in every 41,600,000 births. Only 48 such births have been recorded in history. The only other live deliveries of quints were those of the Dionne sisters in 1934 in Canada and the Diligenti quints, two boys and three girls, born in 1944 in Argentina.

52 Civil Defense Hospitals Distributed to Texas Cities

Fifty-two mobile civil defense hospitals have been placed in storage around the state, and an additional training unit for Bexar County has been approved by the Office of Civil and Defense Mobilization.

Although Texas had depleted its allotment of hospitals, the Office of Civil and Defense Mobilization planned to reinstitute the hospital program on November 1 when a new allotment was expected to be made. Requests for the



Locations of mobile civil defense hospitals.

hospitals are being accepted. The local civil defense director must request the hospital and agree to be responsible for it. There is no cost to the towns and cities receiving the mobile hospitals.

Each of the prepackaged units arrives ready for assembly. It can be set up within a matter of hours and has been done in practice sessions in 55 minutes. Included in each hospital is equipment for 200 beds, three operating rooms, a diagnosis room, a pharmacy, an x-ray room, a clinical laboratory, a sterilizing room, and a central supply room.

Texas cities which already have received emergency hospitals include Abilene, Alpine, Angleton, Beaumont, Boerne, Brenham, Brownsville, Burnet, Canyon, Cleburne, Coleman, Conroe, Dallas, Denton, Devine, El Campo, El Paso, Floresville, Fort Stockton, Fredericksburg, Galveston, Hamilton, Haskell, Hillsboro, Hondo, Houston, Katy, Keene, Kemah, Kerrville, LaGrange, Lockhart, Longview, McKinney, Mercedes, Nacogdoches, New Braunfels, Raymondville, Robstown, San Angelo, Seguin, Springtown, Stephenville, Temple, Terrell, Three Rivers, Tyler, Victoria, Weatherford, West Columbia, and two units at the Austin State Hospital in Austin.

These emergency hospitals are especially important since Texas has a larger number of aiming areas (potential enemy bomb targets) than any other state in the nation. Sixteen Texas cities are considered probable targets because of industrial concentration; 14 because of nearby installations.

Holle Resigns as President Of Border Public Health Group

The resignation of Dr. Henry A. Holle as president of the United States Mexico Border Public Health Association was accepted by the association upon his appointment as medical director of the United States Quarantine Station in New York. Frank J. Von Zuben, Jr., became president, moving up from the vice-presidency.

Plans for the next meeting to be held in Hermosillo, Onora, April 4-8, 1960, are under way. Simultaneous interpretation facilities again will be available in all the general sessions and in many of the section meetings, so that all attendants will be able to follow the presentations and discussions either in English or Spanish.

Those who would like to contribute one or more papers to the program are asked to write George W. Marx, Bureau of Sanitation, Arizona State Department of Health, Phoenix, Ariz.

Manual on Hospital Sepsis Goes to Hospital Administrators

A discussion manual on "Hospital Sepsis: A Communical Disease" is now available. Designed to supplement a motion picture by that title also available for professional use through the support of Johnson and Johnson, the manual endeavors to deal with practical aspects of the problem of eliminating hospital sepsis.

The 44 page manual contains 93 questions and answers, 29 illustrations, and basic reference material and is in color. A copy will be provided to hospital administrators with a limited further supply available on request.

The film was prepared under auspices of the American Medical Association, American College of Surgeons, and American Hospital Association.

Inquiries may be addressed to Johnson and Johnson, New Brunswick, N. J.

If health insurance is to survive as a free enterprise, the practice of admitting patients to the hospital for diagnostic surveys *only* must be stopped.

—Committee on Health Insurance,
Texas Medical Association.

A Brief History of Sutures

"And the Lord God caused a deep sleep to fall upon Adam and he slept. And He took one of his ribs and closed up the flesh instead thereof." (Genesis 2:21) And since that time "closing up the flesh thereof" has remained a surgical problem.

It is interesting, and amazing, as Taylor states, that "we still approximate tissues in the same manner that they were first approximated in early medical history, using for the most part, the same type suture and the same knots as our early medical ancestors." For the use of sutures in coapting wounds is described in the oldest medical literature extant, and from then until the present, an extremely large number and diversity of materials has been used.

It is likely that most animals and birds have had their tissues used as sutures, and the same for plants and vines that have the capability of forming fibers. To enumerate them all would be a long and thankless task. However, the environment has had a great deal to do with the use of specific materials. Thus, the Laplanders used reindeer tendon. In the Pacific Islands, fibers of tapa were used. Ischigura reported in 1873 on the use of whale tendon, and Griddlestone in Australia first used kangaroo tendon. In the early days of Texas, Dr. H. W. Dudley described the use of jackrabbit tendon for sutures in the transactions of the Texas Medical Society in 1884. And of course, human beings furnish their own sutures as in the fascial strips advised in the 1920's by Gallie for hernia repair and advocated some 50 years earlier by McArthur.

In the Edwin Smith Papyrus, dated approximately 2000 B.C. from Egypt, is the first recorded mention of surgical sutures. At that time, not only were wounds pulled together by binding them with tape, but stitching the edges together is described. The exact material used is not known. However, the translater notes that it was probably of plant origin, and both cotton and linen were known at that time. It was probably the former that was used.

Medical writings from two other civilizations existing at approximately that same time, namely, the Babylonian and Chinese, do not mention the use of sutures although it is likely that suturing was known in Babylonia since trade between that country and Egypt existed and other surgical procedures were carried out as mentioned in the code of Hammurabi.

Grecian medicine owed its beginnings to ancient Egypt, and in the books of Hippocrates we find other materials used as sutures. Cotton was available to them at that time and while it is not specifically mentioned as a suture material, such use probably did occur. Specifically mentioned is the use of wool sutures in the ligation of hemorrhoids. Also in the field of proctology, horsehair as a seton in the treatment of fistula was used. Because of its stiffness, coupled with pliability, it could be inserted through a fistulous tract and brought up through the anus. Incision of the tract was then carried out or the overlying bridge of the skin was divided by progressively tightening the suture. Sutures of linen and gold wire also are mentioned for approximating the teeth in fractures of the mandible. Gold was preferred, as it is at the present time, because of its stability while in the oral cavity and lack of reaction around it.

In India at this same time, the fifth century B.C., surgical procedures were being accomplished and sutures were used though the material is not certain.

By the time Galen's era had been reached, surgical practice had progressed to the point where varied operative procedures were being performed, and with them new sutures and techniques came into being. Operations on the thyroid, suturing of tendon and nerve injuries, and suture of intestinal wounds were described by Galen and his contemporaries, Celsus and Archigenes. For the first time silk is described as a suture material. Silk, of course, originated in the Far East and was brought to the western world in the third or fourth century B.C. Because of its relative scarcity, it was not used in great quantities as suture material, for it was all imported. The cultivation of silk worms and manufacture of silk was not accomplished in the western world until the sixth century A.D. Galen also described for the first time the use of catgut as a suture material. Its name, which was derived at that time, came from the use of violin strings as sutures. These violin strings were made of gut, and it was the smaller sizes which were desirable. These particular strings were used on small violins called kits, and this material, originally kit gut, was later interpreted as catgut.

Rhazes, an Arabian physician of 900 A.D., also describes the use of catgut, but his source was slightly different. Just as violins are more or less indigenous to Italy, so was the harp to Arabia, and there it was harp strings which were used. The material was obtained at that time, as now, from the intestinal tract of sheep, but it is doubted that its absorbable properties were realized or desired at the time. It was common knowledge that foreign materials, including sutures, which were left in wounds would be extruded, but this was the accepted practice of the day.

Paré and others in the sixteenth century still were using these same sutures and mention also is made of iron, lead, and silver threads. Silver and gold as suture materials remain much as they were throughout the past. Since they are capable of being drawn into a rather fine wire with relative ease, their use has not changed appreciably. The use of silver by Simms in the repair of vesicovaginal fistula and by Halstead are well known. Shortly after 1800, with the development of steel, iron sutures were no longer used, and when the alloy known as stainless steel was introduced around 1920, this became the ferrous suture of choice. Tantalum, which was discovered as a metal in 1803, was in very short supply until the present century, and it was only during World War II that its use as a suture material came into being.

Early in the nineteenth century, Sir Astley Cooper in England first appreciated the property of absorbability of catgut. He utilized it experimentally as a buried suture leaving the ends short and discovered, on reexploring the wounds, the suture material had disappeared leaving only scar tissue there. Even though the wounds were not sterile, the sutures were not extruded as they had always been previously. In 1860, Lord Lister in England was practicing his antiseptic system of surgery and began the "carbolization" of both catgut and silk. Thus, they were the first sterile sutures used. Shortly after this, all suture materials were sterilized though techniques for accomplishing this have been improved appreciably. Chromicization of catgut was carried out late in the nineteenth century.

In the fourth decade of the present century, plastic materials, including nylon, were developed, and the use of nylon as a suture material first came into the literature in 1940. Since that time, it and numerous other synthetic suture materials have been used widely though the others have largely dropped by the wayside. Thus, our armamentarium is complete, and despite worldwide research, as Taylor states, "we have added little to their (the ancient)

methods with the exception of sterile techniques. Will the future develop a method of better holding tissues together while they repair than the one that antiquity has passed down to us? Or will we continue to sew and tie knots, hoping that eventually the perfect suture will be developed?"

References

Taylor, F. W.: Surgical Knots and Sutures, Surgery 5:498-510 (April) 1939.

—JOHN H. SEWELL, M.D., Fort Worth.

★ Books

Books Newly Acquired

Behrman, Deaconess Maude: *A Cookbook for Diabetics,* New York, American Diabetes Association, 1959.

Corner, George W.: *Ourselves Unborn,* Yale University Press, New Haven, 1944.

Cyriax, Janes: *Text-Book of Orthopedic Medicine, Vol. 1, Diagnosis of Soft Tissue Lesions,* ed. 3, New York, Paul B. Hoeber, 1956.

Gray, Henry: *Anatomy of the Human Body,* ed. 27, edited by Charles Mayo Goss, Philadelphia, Lea and Febiger, 1959.

Gregg, Alan: *Furtherance of Medical Research,* New Haven, Yale University Press, 1941.

Handley, Carroll, and Moyer, John H.: *Pharmacology and Clinical Use of Diuretics,* Springfield, Ill., Charles C Thomas, 1959.

Israel, S. Leon: *Mazer and Israel's Diagnosis and Treatment of Menstrual Disorders and Sterility,* ed. 4, New York, Paul B. Hoeber, 1959.

Jarvis, B. C.: *Folk Medicine, A Vermont Doctor's Guide to Good Health,* New York, Henry Holt, 1958.

Levine, Samuel A., and Harvey, W. Proctor: *Clinical Auscultation of the Heart,* ed. 2, Philadelphia, W. B. Saunders, 1959.

Gifts to the Library

Dr. B. H. Reinarz, Austin, 59 journals.
Dr. S. W. Bohls, Austin, 36 books.
Dr. Joe W. Bailey, Austin, 11 books.
Dr. L. F. Holland, Austin, 342 journals.
Dr. Jerome O. Ravel, Austin, 19 books and 2 journals.
Dr. S. N. Key, Jr., Austin, 26 journals.
Dr. Albert D. Patillo, Austin, 25 journals.
Dr. Harry T. Davidson, Austin, 28 journals.
Dr. Maurice R. Hood, Austin, 142 journals.
Dr. A. D. Pattillo, Austin, 12 books and 53 journals.
Dr. Robert G. McCorkle, Austin, 2 books and 2 journals.
Mrs. T. Wade Hedrick, Abilene, 45 books.
Dr. Witten B. Russ, San Antonio, 10 journals.
Dr. Nelson L. Schiller, Austin, 63 journals and 14 reprints.

Book Notes

Pneumoencephalography

E. GRAEME ROBERTSON, M.D., Honorary Neurologist, Royal Melbourne Hospital; Consultant Neurologist to the Ministry of Health, Tasmania. 482 pages. $14.50. Springfield, Ill., Charles C Thomas, 1957.

Within the space of less than 500 pages the author presents a well documented and illustrated text encompassing the entire field of pneumoencephalography. The first third of the book is devoted to consideration of technique and normal anatomy of intracranial structures demonstrated via air study. Liberally illustrated with plates and line drawings, the book could be criticized for the lack of more definite labeling on some of the illustrations. The text itself is presented with unusual clarity. The balance of the text describes the use of air study in all varieties of intracranial pathology.

The text is to be highly recommended as a source book of interest particularly to radiologists, neurologists, and neurosurgeons.

—Ralph A. Munslow, M.D., San Antonio.

Childbearing Before and After 35

ADRIEN BLEYER, M.D., Associate Professor Emeritus of Clinical Pediatrics, Washington University School of Medicine, St. Louis. Introduction by Richard L. Jenkins, M.D., Director, Psychiatric Evaluation Project, United States Veterans Administration, Washington, D. C. Commentary by Douglas P. Murphy, M.D., Associate Professor of Obstetrics and Gynecology, Gynecean Hospital Institute, University of Pennsylvania, Philadelphia. 119 pages. $2.95. New York, Washington, Chicago, and Hollywood, Vantage Press, 1958.

Only one-third of the babies are born to mothers beyond 30 years of age, but this group contributes two-thirds of our defectives. The author advises completion of the family before the mother is this age whenever possible (the age of the father is unimportant), and completion before 35 years of age whenever social, financial, and other circumstances make earlier completion impossible.

He proves his contention with statistics from mongoloids and achondroplastics, but he also considers heart defects, prematurity, stillborns, large babies, miscarriages, hypertension, fibroids, diabetes, placenta previa, toxemias, obesity, and the increased incidence of cesarean sections in this age group.

The research required to compile and analyze the statistics and charts must have been enormous. The bibliography, in the form of footnotes, is adequate.

The book should be useful to marriage councilors, researchers, planned parenthood organizations, and anyone who must advise regarding future pregnancies in women over 35 years of age following the birth of an abnormal child.

The risk of abnormality in ages beyond 35, though greater than in the ages under 30, is still small, and it is fortunate, indeed, that the author does not advise against pregnancy in these women who have not completed their family.

—Walter E. McRee, M.D., Port Arthur.

Essentials of Therapeutic Nutrition

SOLOMON GARB, M.D., Associate Professor of Pharmacology, Albany Medical College. 147 pages. $2. New York, Springer Publishing Company, Inc., 1958.

Atomic Medicine

CHARLES F. BEHRENS, M.D., F.A.C.R., Rear Admiral, MC, U. S. N. (ret.); Roentgenologist, Yater Clinic, Washington, D. C.; Formerly: Director, Atomic Defense Division, Bureau of Medicine and Surgery, Navy Department; Commanding Officer, Navy Medical Research Institute, National Naval Medical Center, Bethesda, Md. ed. 3. 705 pages. $15. Baltimore, Williams and Wilkins Company, 1959.

This third edition shows a steady growth and improvement so characteristic of progress in the world in which we live in that by the time one completes a study of almost any aspect of atomic medicine something new has appeared. The discussion of hazards and protection is well presented and will be read profitably by anyone interested in this particular field of radioactive endeavor.

The section devoted to physics is good, but one feels it might be well to enlarge upon it somewhat. The effects of ionizing radiation both clinically and biologically are portrayed effectively, and the medical uses of radioisotopes are well presented. Radioactive iodine and phosphorus, which are in more common use, are covered in detail. One of the most valuable things about the whole text is the extensive references at the end of each chapter, and this enhances the value of the text enormously.

This book is filled with information for radiologists, general practitioners, and specialist groups of all types who wish to keep up with the ever expanding events that occur in nuclear medicine.

One can recommend it as excellent reading material for any physician.

—Joe C. Rude, M.D., Austin.

★ American Medical Association

3,500 Expected to Attend AMA Clinical Session

The American Medical Association's thirteenth clinical meeting December 1-4 in Dallas, is expected to draw approximately 3,500 physicians, mainly from the southern and southwestern states.

Planned in cooperation with the Dallas County Medical Society, the meeting is designed to help the family physician meet his daily practice problems. Dr. Everett C. Fox of Dallas is general chairman of the meeting while Dr. C. D. Bussey of Dallas is program chairman.

Among the subjects to be discussed on the scientific program are soft tissue injury; whiplash injuries of the neck; diabetes; heart murmurs in children; new laboratory procedures; new resuscitation techniques; premarital and marital counseling; and the problem child.

Dr. Hubertus Strughold, professor of space medicine at the School of Aviation Medicine, Randolph Air Force Base, will be the principal speaker at the opening scientific session, December 1. Dr. Strughold, often called "the father of space medicine," will discuss the role of medicine in the space age.

The winner of the AMA's Distinguished Service Award at the Atlantic City meeting, Dr. Michael E. DeBakey, chairman of the Department of Surgery at Baylor University College of Medicine, Houston, will participate in a symposium on the surgical considerations of cerebrovascular insufficiency December 1.

The scientific program, including lectures, symposiums, medical motion pictures, color television, and nearly 100 scientific exhibits will be held in the Dallas Memorial Auditorium. Industrial exhibits will number 251. Texas specialists will present closed circuit television programs on numerous subjects.

The auditorium also will house the world's largest health fair, sponsored by the Dallas County Medical Society, in conjunction with the AMA meeting. The fair will run from November 27 to December 7 and will be open to the public.

The fair will feature 150 educational exhibits, prepared by the American Medical Association, allied health groups, and voluntary health organizations. They will be manned by members of the Dallas County Society. Among these exhibits will be the prize winning exhibit in the medical science division of the National Science Fair won by Kay Schuele of Memphis when it was held in Philadelphia last May. Miss Schuele's exhibit, entitled "Algae, Food of the Future," shows how algae grow under different conditions and which species grow fastest. Miss Schuele will be on hand to explain her exhibit and answer questions. A motion picture room will be provided and selected films will be shown continuously during exhibition hours.

Another special feature of the AMA meeting will be the national conference on the medical aspects of sports, to be held November 30, the day before the AMA clinical session opens. The conference, to be held under the auspices of the AMA's Committee on the Medical Aspects of Sports, will be open to athletic directors, coaches, and trainers, as well as interested physicians.

This is the first time that the AMA has held a meeting in Dallas since 1926 when the Association's annual meeting was held there.

The AMA House of Delegates, numbering 208, will meet throughout the week at the Adolphus Hotel, the meeting headquarters. The first act of the House will be to name the General Practitioner of the Year.

Included in the entertainment at the session will be the Cary Memorial Symphony, courtesy of the family of the late Dr. E. H. Cary of Dallas, a former president of the AMA.

Hotel accommodations may be made at the following hotels in Dallas: Adolphus, Baker, Dallas, Mayfair, Melrose, Sheraton-Dallas, Southland, Statler-Hilton, Stoneleigh, Travis, White Plaza, and Whitmore. Motel space is available at the following motels: Alamo Plaza, Belmont Motor, Dallasite, Holiday Inn, Lido Motor, Oaks Manor, and Town House. Applications for room accommodations may be obtained by writing the American Medical Association, Housing Bureau, 1101 Commerce Street, Dallas 2.

AMA Delegates To Be Entertained

Texas delegates will keep busy during the American Medical Association clinical session in Dallas in the southwestern hospitality suite in Hotel Adolphus, which will feature a buffet luncheon for the delegates each day from 11:30 to 2 p. m., sponsored by Texas in cooperation with Arizona, Arkansas, Louisiana, New Mexico, and Oklahoma. Specialty foods from each state will be served. Indian prin-

cesses from Oklahoma will serve as hostesses. The alternate delegates of the states will be invited to the luncheon on Thursday.

During the session, Texas will give a 5 pound bag of grapefruit to the delegates from each state, in addition to a grapefruit spoon. Texas also will operate a juice bar at the hospitality suite with freshly squeezed orange and grapefruit juice.

Texas will be one of the co-sponsors for a hospitality hour Wednesday evening. After the hospitality hour, the Texas delegates will play host to delegates and their wives at a banquet, co-sponsored by Blue Cross-Blue Shield. Entertainment for the banquet will be furnished by the Charles O. Finley Company.

★ Woman's Auxiliary

Auxiliary to Play Host To Wives at AMA Meeting

The Woman's Auxiliaries to the Texas Medical Association and to the Dallas County Medical Society will be hosts to the physicians' wives accompanying their husbands to the clinical session of the American Medical Association in Dallas, December 1-4.

The Dallas County auxiliary will be especially proud of this occasion since the first medical woman's auxiliary in the nation is said to have been organized in Dallas in 1917.

The special events and attractions planned for visiting wives include the health fair, sponsored by the Dallas County Medical Society, November 28-December 6; a concert by the Dallas Symphony Orchestra in the Memorial Auditorium (complimentary tickets will be available at the doctors' registration desk), December 1; a luncheon style show by Neiman Marcus at the Statler Hilton Hotel, honoring Dr. Louis Orr, President of the American Medical Association, and his wife, December 2; and a guided tour of Southland Center, December 3.

Tickets for the events will be available at the information booths. The booths will be staffed by members of the Woman's Auxiliary to the Dallas County Medical Society and will be located in the Dallas Memorial Auditorium, the Adolphus Hotel, and the Statler Hilton Hotel. Complete details of Auxiliary activities will be available at the booths.

The general chairman for the Auxiliary activities is Mrs. Charles D. Bussey; general arrangements chairman, Mrs. Oscar M. Marchman, Jr.; information chairman, Mrs. Benjamin Barzune; entertainment chairman, Mrs. Walter H. Patton; and publicity chairman, Mrs. Maxwell Thomas.

★ Texas Medical Association

President Names Appointees To TMA Councils, Committees

New appointments made on Texas Medical Association committees and councils by Dr. F. W. Yeager, President, are as follows:

Council on Annual Session: Dr. Dennis M. Voulgaris, Wharton, appointed July 18, 1959, to serve until 1960 filling the vacancy created by resignation of Dr. E. D. McKay, Amarillo, May 18, 1959.

Council on Medical Service and Insurance: Dr. George B. Barnes, Corpus Christi, appointed July 22, 1959, to serve until 1961 in a previously unfilled place on the new council.

Committee on Public Health: Vacancy (1960) created by resignation of Dr. James E. Ball, Mt. Pleasant, October 10, 1959.

Committee on Rural Health: Dr. Clifford R. Haynes, Malakoff, appointed September 16, 1959, to serve until 1960 replacing Dr. William L. Wilson, Austin, who resigned in July, 1959.

Committee on Transportation Safety: Dr. Dwight R. Knapp, Kerrville, appointed September 16, 1959, to fill a vacancy created by resignation of Dr. J. C. Terrell, Stephenville, April 30, 1959.

Committee on Blood Banks: Dr. O. J. Wollenman, Jr., Fort Worth, already a member, appointed chairman September 14, 1959. A vacancy on the committee (1962) created by resignation of Dr. E. E. Muirhead, Dallas, former chairman, August 4, 1959.

Committee on Rehabilitation: Dr. Odon F. von Werssowetz, Gonzales, appointed July 20, 1959, to serve until 1961, and Dr. Oscar Selke, Houston, appointed September 15, 1959, to unfilled positions on the new committee. Other members of the committee include Dr. C. W. Tennison, San Antonio, chairman; Dr. Kermit W. Fox, Austin; Dr. Richard Woods, Corpus Christi; and Dr. Tom Shindler, Houston.

Committee on Association Insurance Program: A vacancy for the new committee exists with the term expiring 1962. Members of the committee are Dr. A. R. Hazzard, Giddings, chairman; Dr. B. H. Denman, Lufkin; Dr. C. C. Shotts, San Antonio; and Dr. Braswell Locker, Brownwood.

Committee on Professional Insurance: Dr. George Barnes, Corpus Christi, (previous member of the committee), appointed to the previously unfilled position of chairman. Dr. A. W. Bronwell, Lubbock, appointed October 17, 1959, to serve until 1962 in a previously unfilled place on the new committee. Dr. David O. Johnson, Austin, appointed July 23, 1959, to serve until 1961 to fill a vacancy created by death of Dr. P. M. Kuykendall, Ranger, May 28, 1959.

Committee on Health Insurance: Dr. Chester U. Callan, Rotan, appointed September 14, 1959, to serve until 1960 to fill a vacancy created by resignation of Dr. Milton Spark, Waco, July 29, 1959.

Committee on Contract Medicine: Dr. Richard B. Johns, Abilene, appointed September 15, 1959, to fill unappointed vacancy on committee. Other members of the committee are Dr. J. Layton Cochran, San Antonio, chairman; Dr. N. L. Barker, Paris; Dr. Jack Lee, San Antonio; Dr. E. Peter Garber, Galveston; Dr. Paul M. Wheelis, Brownwood; Dr. H. W. Kilpatrick, III, Baytown; Dr. Homer V. Hedges, Hico; and Dr. J. H. McAlister, Odessa.

Advisory Committee to Texas Tuberculosis Association: Dr. Elliott Mendenhall, Dallas, appointed September 16, 1959, to fill a new office.

The following changes have been made in the Board of Councilors:

District 3: Dr. William H. Gordon, Lubbock, appointed councilor September 26, 1959, to replace Dr. R. A. Neblett, Canyon, who resigned.

District 4: Dr. S. Braswell Locker, Brownwood, appointed vice-councilor September 26, 1959, to replace Dr. J. P. Anderson, Brady, who resigned.

County Societies to Nominate Anson Jones Award Nominees

The Texas Medical Association welcomes any nominations for the Anson Jones Award, which the Association will give a newspaper reporter in the state for outstanding work in reporting lay medical information, from the county medical societies in the state.

The award consists of a bronze plaque and a check for $250. A second place award of $100 and a third for $50 also have been added. The awards are presented each year at the Texas Medical Association's annual session.

Nominations for the award, which is named in honor of Dr. Anson Jones, the last president of the Republic of Texas, a journalist, physician, and statesman, may be based on a series of articles, a regular column, or one particular piece of reporting. Members of the Association's Council on Public Relations and Public Service will serve as judges, and will announce the 1960 winner at their regular January meeting in Austin.

The primary purpose of this award is to show the appreciation of the doctors of Texas for the outstanding work which is being done in the lay medical reporting field. The Association feels the award also has done a great deal towards cementing better relations between the press and medicine and has encouraged more and better medical reporters.

Rules for entering the award contest and general information about the award can be obtained by the county medical societies by writing Dr. Joe R. Donaldson, Pampa, chairman of the Council on Public Relations and Public Service. Nominations are to be sent to Mr. C. Lincoln Williston, Executive Secretary, Texas Medical Association, 1801 North Lamar Boulevard, Austin.

Conference on Physicians and Schools To Be Held in Dallas Next April

For the first time the Committee on School Health of the Texas Medical Association is planning to hold its biennial Conference on Physicians and Schools in Dallas. It is set for next April 4. In previous years the conference has been held in Austin. It is anticipated that this meeting subsequently will be held in other areas of the state.

All physicians interested in either schooling or youth and school administrators, including superintendents, principals, counselors, and other designated school personnel, are invited to the conference. Approximately 400 are expected to attend.

"Emotional Growth and Development of the Child" will be the theme of the meeting. Cooperating in the presentation of the program will be the Dallas Independent School District. The faculty will be authorities, both local and imported, on the mental health, emotional problems, and adjustment of the growing child. Interpretation of these factors will be brought to practical discussion regarding delinquency, poor scholarship, and teenage marriage. The program will include general assemblies, a luncheon, a dinner, and group clinics on various phases of the subject.

A registration fee of $3 will be charged to cover expenses, not including luncheon and dinner. The meeting will be held at the Sheraton-Dallas Hotel, and ample rooms will be available at the hotel for the meeting and the week end.

Arrangements are under the direction of Dr. Edwin L. Rippy, member of the Committee on School Health and chairman of the Dallas school board.

Conference of County Officials Set by TMA for January 16

The week end of January 16-17 has been set for the Texas Medical Association's Conference of County Medical Society Officials at the Association's headquarters building in Austin. Also scheduled for the week end is the orientation program for new or transfer members of the Association and the Executive Board meeting.

A new feature in conjunction with the Texas Medical Association events will be a scientific program sponsored jointly by the Travis County Medical Society and Lederle Laboratories on Friday, January 15, and open to visiting physicians. (See County Society Section for a story on this program.)

Board, council, and committee meetings will be held on Saturday, January 16, with the Executive Board meeting on Sunday morning, January 17. The orientation program will be all day Saturday.

The 1960 Conference for County Medical Society Officials will feature five prominent out-of-state guest speakers. Invitations will be extended to presidents, presidents-elect, secretaries, legislative chairmen, and delegates of all county societies.

A hospitality hour at the Driskill Hotel will be held the evening of January 16 for all members of the Association and their wives and guests.

A number of hotels and motels have set aside rooms for members of the Association. Among these are the Villa Capri Motor Hotel, 2360 Interregional Highway; Terrace Motor Hotel, 1201 South Congress; Commodore Perry Hotel; Stephen F. Austin Hotel; and Driskill Hotel. Reservations may be made by writing directly to the hotel or motel of choice or to the Texas Medical Association, 1801 North Lamar Boulevard, Austin.

★ County Societies

Travis Society to Sponsor Symposium January 15

The Travis County Medical Society's 1960 Clinical Medicine and Surgery Symposium will be held in Austin, January 15. Co-sponsors will be the Lederle Laboratories Division of the American Cyanamid Corporation.

The symposium will feature such specialists as Col. John P. Stapp, United States Air Force, speaking on "Problems of Manned Space Flight"; Dr. James B. Donaldson, Laurel, Miss., "The Significance and Accuracy of Laboratory Reports"; Dr. Edmund L. Dubois, Beverly Hills, Calif., "Diagnosis and Treatment of Gynecologic Diseases in the Adolescent"; Dr. Henry F. Page, Philadelphia, "What Medical Science is Doing About Aging and the Aged"; Dr. William H. Requarth, Decatur, Ill., "The Care of Minor Farm, Home, and Industrial Injuries"; and Dr. Howard H. Steel, Philadelphia, "The Prevention and Treatment of Postoperative Infections."

All physicians of the Texas Medical Association are invited to attend the symposium. Those desiring to attend are asked to notify Roy J. Cates, Executive Secretary, Travis County Medical Society, 2907-A Red River, Austin, in advance so that necessary accommodations can be made.

County Society Briefs

The "tissue bill," permitting an adult to donate all or part of his body for the advancement of medical science and many other laws passed in the recent session of the Texas Legislature were discussed by Senator W. S. (Bill) Fly of Victoria at the October meeting of the *San Patricio-Aransas-Refugio Counties Society*. Other guests attending the meeting were District Judge John H. Miller, County Judge William E. Nicholas, and State Representative Harold Parish.

Pictured left to right are Senator W. S. Fly, Victoria, guest speaker at the recent San Patricio-Aransas-Refugio Counties Medical Society; District Judge John Miller, Sinton; Dr. James L. Pierce, Jr., Sinton; County Judge William Nicholas, Sinton; and Dr. John W. Tunnell, Taft.

Senator Fly told the area audience that 92 per cent of state expenditures are devoted to education, welfare, highways, and hospitals. He said that many hours are spent by the budget committees examining education, health, and welfare programs to see that waste is eliminated and that benefits actually reach people for whom they are intended.

Senator Fly, a native of Victoria, has served in the Senate since 1955. He has been chairman of the Committee on Finance of the Senate since 1955. He also previously has been chairman of the General Investigating Committee, a member of the Legislative Budget Board and Legislative Audit Committee, and chairman of the Texas Tax Study Commission. While serving as a member of the House of Representatives, he was chairman of the Judiciary Committee and chairman of the Legislative Redistricting Committee, the first time Texas was redistricted in 20 years.

The *Tom Green-Coke-Crockett-Concho-Irion-Sterling-Sutton-Schleicher Counties Society* met October 5 in San Angelo to hear Don M. Anderson, assistant executive secretary of the Texas Medical Association, talk on the future of doctors in Texas from political as well as socio-economic viewpoints, emphasizing the dependence of most facets of medicine on the political flavor.

L. Jean Subbins, M. T. (ASCP) BB, director of the John Sealy Hospital Blood Bank, was the guest speaker for the *Travis County Society* October 10 meeting in Austin. She discussed "The Latest in Blood Banking." The remainder of the meeting was devoted to a formal presentation of current policies and plans of the Travis County Medical Society Blood Bank. Technicians from the various hospital and private laboratories in Austin were invited to attend the program portion of the meeting.

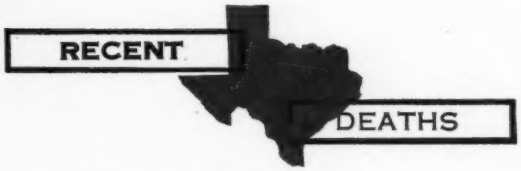
"Tuberculosis—New Problems and Diagnosis" was the subject of Dr. Lynn C. Christianson when the *Dallas County Society* met jointly with St. Paul Hospital Medical Staff October 13 in Dallas.

Potter-Randall County Society met at Vol's Steak House, Amarillo, on September 14. Speaker for the evening was Dr. Eugene C. St. Martin of Shreveport, who spoke on "Urological Problems in Children."

Dr. Margaret Davis announced that as of October 1 an additional $2 fee would be charged for cross-matched blood which is ordered by physicians and which is returned to the Potter County Memorial Blood Bank unused.

The president read a letter from the American Cancer Society which stated that the organization has dressings and equipment for cancer patients available. However, the cancer society prefers to have the attending physician's approval before issuing the equipment.

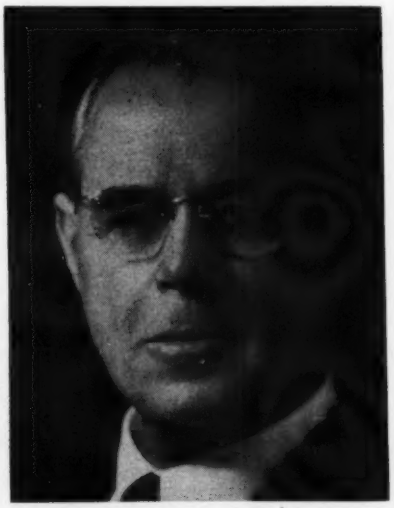
The first step toward establishing headquarters for the Potter-Randall County Society was taken when $1,210 was placed in a savings account at the First Federal Savings and Loan Company, it was brought out. The amount represented a $10 per physician allotment taken from the general fund of the medical society based upon the number of regular and provisional members who were on the role as of last January 1.



DR. CLYDE O. WATSON

Dr. Clyde Otis Watson, a former school teacher turned physician, died in a Corpus Christi hospital October 6, 1959.

The son of George W. and Irene (Smith) Watson, the general practitioner was born in Clarksburg, W. Va.,



DR. CLYDE O. WATSON

August 23, 1881. He was a 1904 graduate of the West Virginia Wesleyan College at Buckhannon, W. Va., and the University of Louisville Medical Department at Louisville, Ky., in 1908. He served a year's internship in the Charleston General Hospital before going to Corpus Christi in 1909, where he practiced medicine until he injured his ankle in April, 1958. Early in his career, Dr. Watson had taught school at Paw Paw, W. Va. He then served as principal of the Williamson (W. Va.) High School for 3 years. During his 50 years of practice in Corpus Christi, he served on the staff at Spohn Hospital.

In 1923 he was elected to the Corpus Christi school board and held that position until entering city politics in 1933. Dr. Watson was city commissioner of Corpus Christi from 1933 through 1935, returning to office in 1937. He held his commissioner's post until 1944.

A 30 year member of the Kiwanis Club, Dr. Watson also belonged to the Chamber of Commerce and the Methodist Church. He also was a member of the Nueces County Medical Society, the Texas Medical Association, and the American Medical Association.

Dr. Watson is survived by a daughter, Mrs. C. R. Cunningham; a granddaughter, Claudia Audrey Cunningham; and a grandson, Charles Watson Cunningham, all of Corpus Christi.

DR. GUION A. LINDSAY

Dr. Guion Alton Lindsay, Dallas, died September 15, 1959.

A surgeon and internist, Dr. Lindsay was educated at Harperville College in Mississippi, the University of Louisville at Louisville, Ky., and at the University of the South at Sewanee, Tenn. He was graduated in 1902 from the Memphis Hospital Medical College at Memphis. He did postgraduate work at the New York Polyclinic Hospital, the Postgraduate Hospital in New York, and the Mayo Foundation at Rochester, Minn.

Dr. Lindsay was born August 18, 1880, at Tuscola, Miss. His parents were Joe and Sallie (McBeth) Lindsay. In 1944 he married the former Miss Eunice McCullough of Dallas. His first wife died in 1943.

Dr. Lindsay practiced at Lena, Miss., for 14 years before coming to Dallas. He practiced at Dallas for more than 40 years.

A member of the Texas Medical Association since 1919, Dr. Lindsay also belonged to the Dallas County Medical Society, the American Medical Association, and the Southern Medical Association. He was a Baptist, a thirty-second degree Mason, a Shriner and belonged to Woodmen of the World.

Surviving are his wife; two sons, Smythe H. Lindsay, D.D., of Coral Gables, Fla., and Dale A. Lindsay of Greenwich, Conn.; a daughter, Mrs. Andrew J. McMaster of Dallas; two sisters, Mrs. Myrtle Waller and Mrs. Maude L. Bush, both of Carrollton, Miss.; and five grandchildren.

DR. BERNARD H. BAYER

Former secretary-treasurer of the Texas Academy of General Practice, Dr. Bernard Hyman Bayer of Houston died October 9, 1959, as a result of heart disease.

The son of Max and Bessie (Svedlove) Bayer, Dr. Bayer was born in Houston December 26, 1910. He was educated in Houston schools, attending Rice Institute at Houston from 1928 until 1931. He was a 1935 graduate of the Tulane University School of Medicine at New Orleans, serving an internship and residency at Jefferson Davis Hospital in Houston. Following this he opened a general practice in Houston and remained there until his death. His years of practice were interrupted during World War II by a year's service in the United States Army Medical Corps. He held the rank of captain during his period of service. Dr. Bayer was a past president and chief of surgery at Heights Hospital. He had also been a former instructor in urology at Baylor University College of Medicine and a local surgeon for the Southern Pacific, Missouri Pacific, and Chicago and Eastern Railroads.

A past president of Phi Lambda Kappa medical fraternity and past president, vice-president, and chairman of the board of the Harris County Academy of General Practice, Dr. Bayer also belonged to the Harris County Medical Society, Texas Medical Association, American Medical Asso-

DR. GUION A. LINDSAY

DR. BERNARD H. BAYER

ciation, Southern Medical Association, Post-Graduate Medical Assembly of South Texas, and the Association of American Physicians and Surgeons. Dr. Bayer was president and general manager of the Heights Medical Building. He was a member of Congregation Beth Yeshurun and Adath Emeth, the Lions Club, the Elks Lodge, and the alumni associations of Rice Institute and Tulane University. His interests during leisure time included fishing, golf, and photography.

Dr. Bayer is survived by his wife, the former Miss Rebecca Miller of New Orleans (they were married in 1935); three daughters, Mrs. Mallory Kaplan, Miss Carol Lynn Bayer, and Miss Harriet Bayer; a son, Robert M. Bayer, all of Houston; a brother, Joe Bayer, also of Houston; a sister, Mrs. I. Cotlar of New Orleans; and two grandchildren, Brian Howard and Linda Marcia Kaplan of Houston.

DR. FLOYD S. FRANKLIN

Dr. Floyd Shock Franklin, Dallas, died September 9, 1959, as a result of gunshot wounds received during a hunting accident.

The son of James Thomas and Clara (Jackson) Franklin, Dr. Franklin was born October 14, 1904, at Waco. He received his preliminary education in Fort Worth public schools, and later was graduated from Texas Christian University in Fort Worth and Baylor University College of Medicine at Dallas. Following his graduation from medical school in 1931, he served an internship at Parkland Hospital in Dallas and residencies in surgery at W. I. Cook Memorial Hospital in Fort Worth and orthopedics at New York State Reconstruction Hospital at West Haverstraw, N. Y. While at Haverstraw, Dr. Franklin married the former Miss Katherine de Noyelles.

Dr. Franklin began his medical practice in Dallas in 1935. His work was restricted to orthopedic surgery. From 1939 until 1943, he was assistant clinical professor of orthopedic surgery for Baylor University College of Medicine. Currently, he was assistant clinical professor of orthopedic surgery at the University of Texas Southwestern Medical School.

Active in medical and civic affairs, Dr. Franklin had been a member of the Texas Medical Association since 1933. Since 1936 he had held this membership through the Dallas County Medical Society; prior to that he had belonged to the Association through the Tarrant County Medical Society. Dr. Franklin also held membership in the American Medical Association, Dallas Southern Clinical Society, Texas Orthopedic Association, and Southwestern Surgical Congress. Other organizations to which he belonged included the Highland Park Methodist Church, Rotary Club, Phi Beta Pi medical fraternity, and the Spring Valley Athletic Club.

Surviving Dr. Franklin are his wife; two sons, John Floyd Franklin and David Franklin; a daughter, Martha Franklin, all of Dallas; three brothers, James Franklin of Laredo; the Rev. Barnard Franklin of Kaufman; and George Franklin of Fort Worth; and a sister, Mrs. Swan Richardson of Stephenville.

DR. JOHN W. TORBETT, JR.

Dr. John Walter Torbett, Jr., Beaumont, died September 7, 1959, at his summer home at Gilchrist. His death was the result of a heart attack.

The radiologist was born June 2, 1905, in Marlin, the son of Dr. and Mrs. J. W. Torbett, Sr. A graduate of the Baylor University College of Medicine at Houston, Dr. Torbett previously had attended Texas Agricultural and Mechanical College at College Station and the University of Texas at Austin. He interned 2 years at King's County Hospital in Brooklyn, N. Y., and was then resident physician there 1 year. He did postgraduate work for the University of Iowa Hospital, Department of Radiology. Specializing in internal medicine, Dr. Torbett began his practice in Marlin in 1933, continuing it until 1939. In 1943 he moved to Beaumont; his specialty there was radiology. During World War II he served as a captain with the Army Medical Corps.

Dr. Torbett was recognized for his activities in medical organizations, both at the local and state levels. In the past he had been secretary and president of the Falls County Medical Society. His work in the Texas Medical Association

DR. FLOYD S. FRANKLIN

DR. JOHN W. TORBETT, JR.

included a term as secretary for the Section on Public Health and recognition through a certificate of merit which he received for the best scientific exhibit at one of this organization's annual sessions. Dr. Torbett also was a fellow of the American College of Physicians, a member of the American Medical Association, the Texas Radiological Society, the Jefferson County Medical Society, and the Beaumont Academy of Medicine. He formerly had been active in the American Heart Association and the Texas Heart Association. Dr. Torbett was an Episcopalian and belonged to Phi Chi medical fraternity, Sigma Chi social fraternity, the One in One Hundred Gun Club, the Chamber of Commerce, and the National Rifle Association. During his leisure hours he enjoyed hunting, fishing, and photography. He also was an amateur gunsmith.

Dr. Torbett and the former Mrs. Dorthea Nance were married in Waco on October 30, 1943. Surviving are his wife; a son, John W. Torbett, III, of Dallas; one daughter, Karen Lynne Torbett and one step-daughter, Mrs. Gail Nance Moreman, both of Beaumont; and his mother, Mrs. John W. Torbett, Sr., of Marlin.

DR. ROBERT L. HARRIS

Dr. Robert Locke Harris, Odessa, died September 19, 1959, as a result of coronary thrombosis.

He had received his preliminary education at Allen Academy at Bryan, San Marcos Academy at San Marcos, and Peacock Military Institute at San Antonio. He was born July 9, 1894, at Houston, the son of Dr. Robert Dudley Harris and the former Miss Robbie Pinckney.

A 1920 graduate of Baylor University College of Medicine at Dallas, Dr. Harris interned at Baylor Hospital in Dallas and the Fifth Avenue Hospital in New York. He practiced in Fulshear, Richmond, Houston, and Liberty, becoming company physician for Gulf Oil Corporation, with headquarters in Houston and Fort Worth. He held this position for 23 years. He had practiced in Odessa for the past few years. Dr. Harris spent 3 years in Peru as physician for a mining company.

Dr. Harris' medical members included the Andrews-Ector-Midland Counties Medical Society, the Texas Medical Association, and the American Medical Association. He was a veteran of World War I and belonged to the Methodist Church.

Surviving are his wife, the former Miss Mazie Pass of Denton (they were married in 1941); two sons, Robert Parks Harris and Dr. Lawrence Dudley Harris of Abilene; and a brother, Eugene A. Harris of Houston.

DR. DUNCAN C. McKEEVER

Dr. Duncan Clark McKeever, Houston orthopedic surgeon, was killed October 13, 1959, when he was run into as he poured gasoline into the tank of his stalled car.

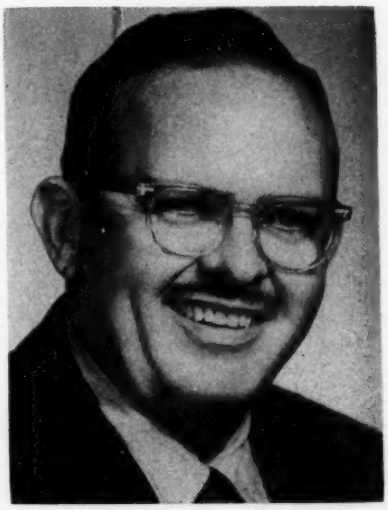
A well known medical leader both at the local and national level, Dr. McKeever was born September 13, 1905, at Valley Falls, Kan. His parents were George Vernon and Elizabeth (Duncan) McKeever. His early education was received in Kansas City schools. He later attended the Kansas City Junior College and the University of Kansas at Lawrence, and was graduated in 1929 from the University of Kansas Medical School at Kansas City. His graduation was followed by an internship at the United States Naval Hospital in Brooklyn, N. Y., and a 3 year residency at St. Luke's Hospital, Kansas City. He ended his residency in 1935, the same year marrying the former Miss Dorothy Grant of Kansas City, and opening a practice in orthopedic surgery in the same city. He stayed in Kansas City until 1939, when he moved to Houston. He continued with his orthopedic practice and at the time of his death was chief of orthopedics at Memorial Hospital.

Throughout his life, Dr. McKeever was interested in different aspects of automobile safety. He was a director for 25 years of the Motor League of South Texas, serving also as chairman of the league's committee on safety during that time. Dr. McKeever was recognized by the United States Government about 2 years ago for having personally tested a safety belt which is now being used commercially. During these tests, both Dr. and Mrs. McKeever were injured, Mrs. McKeever more severely than Dr. McKeever. Dr. McKeever used stickers on his stationary urging safety belt use. He and his family always used them.

Dr. McKeever went into active military duty in 1940 in connection with the Office of Procurement at Houston, remaining there until 1942. From there he was sent to Long Beach, Calif., where he was chief of orthopedics at the United States Naval Hospital. He also saw duty in Hawaii and in the Corpus Christi Naval Hospital and was discharged with the rank of captain in 1945 from the Naval Hospital at Bethesda, Md., where he had been a patient for 4 months.

The author of numerous articles dealing with orthopedics and a diplomate of the American Board of Orthopedic Surgery, Dr. McKeever was president of the American Fracture Association and a past president of the Association of Bone and Joint Surgeons. He was associate editor of *Clinical Orthopedics*, a fellow of the American College of Surgeons, and a member of the Harris County Medical Society, the Texas Medical Association, the American Medical Association, the American Academy of Orthopedic Surgery, and the Clinical Orthopedic Society. He was an Elk, was instrumental in the organization of the Texas Elks Crippled Children's Hospital in Gonzales County, where he was chief surgeon, and was an amateur radio operator. He enjoyed hunting.

Members of the family who survive include his wife; three children, Grant Rexford, Clark Dickson, and John Duncan; and a sister, Mrs. Russell O. Settle of Springfield, Mo.



DR. DUNCAN C. McKEEVER